

Infantry

January-February 1 92





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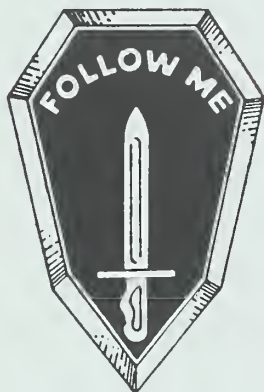
Secretary of the Army

MG JERRY A. WHITE

Commandant, The Infantry School

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Editor, INFANTRY



This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army

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January-February 1992

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By A. Brockie Stevenson

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Commandant's NOTE

MAJOR GENERAL JERRY A. WHITE Chief of Infantry



TAKING CARE OF THE SOLDIER — EQUIPPING HIM

In his first speech as Chief of Staff of the Army, General Gordon R. Sullivan affirmed the importance of the individual soldier. He said, "Our warfighting edge is the combined effort of quality people, trained to razor sharpness, outfitted with modern equipment, led by tough, competent leaders, structured into an appropriate mix of forces by type, and employed according to up-to-date doctrine *I am certain the single most important factor is the soldier.*"

The TRADOC commander has made the soldier a top priority throughout the command. For example, the acronym DTLOM — *doctrine, training, leader development, organization, and materiel* — has been used to attack problems in the past. But this acronym has been changed to DTLOMS, with the *S* standing for *soldier*. This reemphasizes that all TRADOC efforts must consider the soldier's needs, which are truly a top priority.

As the Chief of Infantry I have been asked to be the "conscience of the Army for the soldier" with the primary aim of improving the combat effectiveness of all soldiers.

An extensive Soldier Modernization Plan (SMP) will combine the Army's many efforts to improve soldier effectiveness and to influence both current and new technology. While the first fully integrated Soldier System will not be fielded until the year 2000, the SMP outlines many near and mid-term improvements to our current capability.

Congress is providing research and development money to "increase the combat effectiveness of

. . . infantrymen (foot soldiers) through the development of lighter, more lethal Infantry weapons and improved equipment." This is all part of the Soldier Enhancement Program (SEP).

Briefly, the SEP allows for the review of non-developmental (off-the-shelf) items and for speeding research and development on soldier items. This will allow our soldiers to receive new equipment as fast as possible. The SEP is a joint program coordinated with the United States Marine Corps' Marine Enhancement Program. The SEP focuses on weapons and munitions; combat clothing and individual equipment; food, water, and shelter; and communication and navigation aids.

The intermediate cold/wet glove is one of the items already developed through this program. It uses the current technology that is also used in the ski gloves many soldiers now purchase. The first issue of the new glove will be to the 82d Airborne Division in January 1992.

Other items developed under this program include an improved desert boot, a lightweight flashlight, an assault pack for M249 squad automatic weapon (SAW) ammunition, a flameless ration heater that will be issued with new MREs (meals, ready to eat), and the type classification of the M4 carbine. These items have been bought and issued for evaluation to such units as the 75th Ranger Regiment and the 82d Airborne Division.

Some items still under development show promise. These include a lighter helmet with an

improved suspension system, improved optics for M16 rifles and squad automatic weapons, a self-inflating ground insulator, improvements to the hot weather and desert BDUs, a small digging tool, an improved jungle boot, and several improvements to MREs and ration heating equipment.

Additional items that are programmed for evaluation during Fiscal Year 1992 include a lightweight tripod for the M249 SAW, improved night sights and sight-mounting rails for the M24 sniper rifle, a small arms boresighting device that simplifies the boresighting of small arms, an improved rainsuit, overhead cover for Infantry fighting positions, a laser target designator, and more ration improvements.

Another initiative that is advancing the overall process is central funding and central fielding for clothing and individual equipment. Approved in 1990 and begun in 1991, this concept ensures that first-to-fight units receive the latest items of equipment. (Early deploying units will receive them on a "push" basis free of charge.) Some items now being fielded under this funding and fielding system include the large field pack with internal

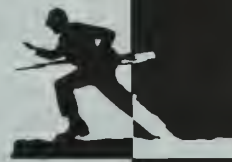
frame, the individual tactical load-bearing vest, the extended cold-weather clothing system, and intermediate cold wet boots and gloves, to name a few. The result is that soldier items are being developed and fielded faster.

The Infantry School is working with other agencies to provide better support to the soldier. The Combined Arms Support Command at Fort Lee, Virginia, for example, has completed a combat service support system program review that focuses on soldier support. Accordingly, several initiatives have begun that focus on improving the soldier's quality of life through such field services as laundry and showers and such personal services as mail and pay.

We are actively working to improve the individual soldier's combat effectiveness and his quality of life in a tactical environment. In that effort, we need your thoughts on what we are doing and how we can do it better. We encourage you to send suggestions to Commandant, U.S. Army Infantry School, ATTN: ATSH-TS, Fort Benning, GA 31905. You may also call the TSM-Soldier Hotline at DSN 835-1245 or commercial (404) 545-1245.



INFANTRY LETTERS



SYNCHRONIZATION

I want to thank INFANTRY for publishing the article "The Synchronization of the Brigade Fight" (July-August 1991, pages 17-20), which Captain Steven S. Klement and I wrote more than a year ago. Much has happened since then — not only in the world but also in my thinking about synchronization. The following comments are designed to put the article into a different perspective.

First, let me highlight the critical part of that article that could be lost to a reader. What makes the whole concept work is the commander's vision of the desired end state — what the situation will look like at the end of the battle. In my recent work, I have linked this to conflict termination. What I argue is that if one can clearly envision the desired outcome, then he can plan backward to the present.

In this backward planning, the vision then becomes the ultimate objective, and intermediate objectives are established that, when achieved, will result in the accomplishment of the final objective. One can apply this type of thinking to any endeavor. In the military services, we use the seven battle operating systems as the critical variables. In other types of endeavors the variables change, but it will still be possible to interrelate them, and thus to break the requirements down into phases — "bite-sized" pieces — and then synchronize them in a manner similar to that shown in our article.

I am now working on two more articles that argue that a thought process similar to the above is critical to any political-military endeavor. Hopefully, these pieces will be published in coming months.

Finally, the August issue of the FIELD ARTILLERY JOURNAL con-

tains an example of making the synchronization matrix work with specific emphasis on the artillery part of the fight. I commend it to INFANTRY readers.

BRUCE B.G. CLARKE
COL
Carlisle, Pennsylvania

THERMAL TRPs

The "Swap Shop" item on thermal TRPs in the May-June 1991 issue of INFANTRY (page 45) recalls the adage, "Confound the ancients; they've stolen our best ideas."

The thermal device described has been around for years, and I applaud Lieutenant Owens for giving the expedient renewed visibility. Nonetheless, its latest incarnation has been around since 1989 and has been taught by Sergeant First Class Martin, Live Fire Team (Dragon), to every rotational unit at the National Training Center for more than two years.

I encourage its widespread recognition in the Army as the best expedient TRP around. Technology such as chemlights, chemical heating pads, and reverse-polarity "no-power" thermal panels can't hold a candle (so to speak) to this device's simplicity and durability.

J. H. BURNS, JR.
COL, USA
1st Brigade, 2d Infantry Division

1991 INDEX

The 1991 index to INFANTRY has been prepared separately and is available to anyone who requests a copy. Please address your requests to Editor, INFANTRY, P.O. Box 2005, Fort Benning, GA 31905-0605

MILITARY HISTORY SYMPOSIUM

The United States Air Force Academy will hold the Fifteenth Military History Symposium, "A Revolutionary War: Korea and the Transformation of the Post-War World," 14-16 October 1992.

For further information, anyone who is interested may call me at (719) 472-3230 or write to me at Headquarters, USAFA/DFH, USAF Academy, CO 80840-5701.

TIMOTHY N. CASTLE
CPT, USAF

SMOKE/OBSCURANTS SYMPOSIUM

The Smoke/Obscurants Symposium XVI will be held 14-16 April 1992 at the Kossiakoff Conference and Education Center, Laurel, Maryland.

The theme of the symposium is "Smoke, the Margin of Victory." The topics to be presented are Smoke Systems and Materials, Modelling, Operational Uses, Health or Environmental Effects, DESERT STORM Lessons, Countermeasures, Nonmilitary Applications, Data Analysis, Data Assessment and Evaluation, Camouflage, Concealment, Deception, Natural Obscurants, and Electromagnetic Systems Performance.

The symposium is sponsored by the U.S. Chemical Research, Development and Engineering Center at Aberdeen Proving Ground, Maryland. Members of the Department of Defense, industry, academia, and allied nations will submit papers up to and including the Secret level on the topics mentioned.

JEANNE HAWTIN

INFANTRY NEWS



CHIEF OF INFANTRY UPDATE

EDITOR'S NOTE: Infantrymen are encouraged to comment on the items that appear here and to suggest topics they would like to see covered in the future. Address suggestions to Commandant, U.S. Army Infantry School, ATTN: ATSH-TDI, Fort Benning, GA 31905-5593, or call DSN 835-2350/6951 or commercial (404) 545-2350/6951.

THE 1992 INFANTRY Conference will be conducted at Fort Benning, Georgia, 7-10 April 1992. The purpose of the conference is to provide a forum for exchange of dialogue between members of the Active Army and Reserve components and the Infantry School with the focus on warfighting, doctrine, tactics, training, weapon systems, and combat developments.

SQUAD AUTOMATIC WEAPON (M249) gunners who are lubricating the components of the weapon's gas system must stop doing so immediately.

A recent Infantry School survey of M249 gunners indicated that about 36 percent of them had been using CLP (Cleaner, Lubricant and Preservative) to lubricate these components. The M249 operator's manual (TM9-1005-201-10, July 1991, pages 3-34 and 3-39) clearly states that the gas regulator hole in the barrel, the gas regulator, and the piston on the piston assembly *must not be lubricated*. Similarly, the inside of the gas cylinder assembly must not be lubricated (TM9-1005-201-23&P, 14 December 1990, page 2-15).

Lubrication of these components will

greatly increase the likelihood of weapon stoppages and must be discontinued.

THE M113 ARMORED PERSONNEL carrier has passed its 30th anniversary and is still in production.

The M113 was introduced in 1960 to replace the aging M59 APC, and today there continues to be a requirement for these versatile carriers. The M113 has been improved over the past 30 years — with a diesel engine in 1964, improved cooling and suspension in 1979, and an improved M113A3 configuration in 1987.

The M113A3 configuration includes the reliability in selected equipment (RISE) powerpack, which consists of a 275-horsepower turbocharged engine and a new hydrostatic transmission, internal kevlar spall liners that provide added protection for the crew, and external fuel tanks mounted on the rear of the vehicle. The external tanks reduce the chance of fire inside and increase interior stowage space. The M113A3 also has mounting provisions for a bolt-on armor kit that has not yet been procured.

These improvements have increased the mobility, survivability, and reliability of the M113 APC. It now has mobility commensurate with that of the supported force and can maneuver with the Bradley fighting vehicle and the Abrams tank fleet.

The performance and protection on the M113A3 help it maintain the OPTEMPO of our modern divisions. Since production began in 1987, more than 1,600 vehicles have rolled off the

production line and have been issued to Active Army, Army National Guard, and U.S. Army Reserve units. Although these units are procuring no more new production vehicles at this time, foreign military sales of new vehicles continues.

Since 1989, the depot conversion of the M113A2 vehicles to the M113A3 configuration has been the Army's method of improving the fleet, and its usefulness will continue well into the next century.

The A3 improvements are now being programmed for other members of the M113 family including the M577 command post vehicle, the fire support vehicle (FIST-V), the 120mm mortar carrier (M1064), and the smoke generator.

THE PATHFINDER COURSE offered by the Infantry School trains soldiers to control helicopters in all phases of airmobile operations. As announced in a recent change to DA Pamphlet 351-4, Army Formal Schools Catalog, the three-week program of instruction includes the following tasks:

- Establish and operate a day/night single and multiple aircraft helicopter landing zone.
- Establish and operate a day/night Army and Air Force parachute drop zone.
- Conduct slingload operations.
- Provide air traffic control and navigational assistance to aircraft within an operational site control zone.

To attend the three-week course, commissioned officers (Active Army or Reserve Component) must meet the following prerequisites:

- Be in the ranks of second lieutenant through captain.

- Have actual or anticipated duty assignments that require performance or knowledge of pathfinder duties in branch codes 11, 12, 13, 14, and 21.

Enlisted personnel must meet the following prerequisites:

- Be in the ranks of sergeant through master sergeant and have at least one year of service remaining upon completion of the course.

- Have actual or anticipated duty assignments that require performance or knowledge of pathfinder duties in PMOS 11B, 11C, 11H, 11M, 19D, 76Y, or 88M.

Both officers and enlisted personnel must have valid physical examinations less than 12 months old and minimum physical profile serials of 111121 with no speech impediments.

U.S. Marine Corps personnel — company grade officers and enlisted personnel in the ranks of corporal through gunnery sergeant — may also attend.

THE JUMPMASER SCHOOL offered at the Infantry School trains soldiers to perform the following tasks:

- Serve as jumpmaster on a day/night combat equipment jump.

- Demonstrate proper attaching, jumping, and releasing procedures with an individual weapon and equipment container while participating in an actual jump.

- Attain a passing score on a final written examination.

- Demonstrate proficiency in the jumpmaster personnel inspection by successfully inspecting two rigged jumpers and one combat-equipped jumper in four minutes, 30 seconds. Student must score 70 or higher and miss no major discrepancies.

To attend, a soldier must meet the following prerequisites:

- Be in the Active Army, Army National Guard, or Army Reserve, officer or enlisted in the rank of sergeant or above.

- Be a qualified parachutist with at least 12 static line parachute jumps from

U.S. Air Force aircraft and on jump status for 12 months.

- Be recommended by his battalion commander or another officer in the rank of lieutenant colonel.

Marine Corps enlisted personnel in the rank of sergeant and above may attend. Corporals may also attend if they are volunteer qualified military parachutists who have at least 15 static line jumps.

THE INFANTRY MORTAR Leader's Course (IMLC) is a five-week, four-day course designed to teach junior commissioned officers and senior noncommissioned officers the tactical and technical aspects of all mortar systems now used by the United States.

The current program of instruction consists of classroom instruction, hands on training, and field training. One week is devoted to mechanical training on the 60mm, 81mm, 107mm, and 120mm mortar systems. Two weeks are dedicated to training on the M16 plotting board and the mortar ballistic computer (MBC). The rest of the course covers tactics, training management, forward observer procedures, and survey procedures.

Each student must score at least 70 percent on each of the tests given, and two retests are given if needed.

Commissioned officers must be in the ranks of first or second lieutenant — Active Army, Army National Guard, or Army Reserve — who are assigned to, or on orders for assignment to, infantry mortar units. Officers in the continental United States (CONUS) will attend in a temporary duty (TDY) and return status. Officers outside CONUS must be identified to the U.S. Army Personnel Command as potential mortar platoon leaders and may attend in TDY enroute status.

Noncommissioned officers must be in the ranks of sergeant to master sergeant — Active Army, Army National Guard, or Army Reserve — serving in a mortar unit. All IIC graduates of the Advanced Noncommissioned Officer Course who have graduation dates of 30 September 1990 or later will no longer be authorized

to attend the IMLC unless they have not been assigned to an IIC TOE position within 36 months of applying for attendance.

Students should not report for the course without approved ATRRS (Army Training Requirements and Resources System) quotas. The schedule for the remainder of FY 1992 is as follows:

CLASS NUMBER	CLASS DATES
4-92	26 Jan 92-06 Mar 92
5-92	15 Mar 92-23 Apr 92
6-92	03 May 92-12 Jun 92
7-92	21 Jun 92-31 Jul 92
8-92	16 Aug 92-25 Sep 92

THE FIRST ANNUAL U.S. ARMY Combat Arms Matches will be conducted at Fort Benning, 26 April to 2 May 1992. The commander of the U.S. Army Marksmanship Unit (USAMU) invites all units and individuals from the Active Army, U.S. Army Reserve, and Army National Guard to participate.

The Combat Arms Matches, which replace the All Army Championships of previous years, are totally oriented toward training and testing critical small arms combat skills. This shift in emphasis is a natural result of the Total Army's longstanding desire to increase the individual soldier's ability to use his issued service weapon effectively.

The matches have been specifically designed to accomplish three major goals:

- Provide state of the art training and evaluation of small arms *combat* skills, training that meshes perfectly with our current Army-wide combat training.

- Be accessible to all commands, regardless of branch, size, or level of current marksmanship training.

- Provide this improved combat-oriented competition within the limitations of personnel, time, and budget.

The competition will consist of rifle, pistol, sniper, and machinegun courses of fire. The emphasis will be placed on combat skills integrated into marksmanship competition. This marksmanship competition will give commanders at all levels a training event they can

immediately recognize and identify with. Training for this competition is purposely designed to fit in with existing resources, training scenarios, and limitations.

Units are encouraged to come to Fort Benning in April and compete against the best the Total Force has to offer. The new matches are challenging; all competitors will learn and retain valuable small arms combat skills and return to their parent units with an increased sense of pride and cohesion that stems from their on-range accomplishments.

Commanders at all levels are invited to accompany their units to the competitions. They will find that it is the best small arms range training and evaluation available anywhere.

Requests for match bulletins should be directed to Commander, USAMU, ATTN: S-3, Fort Benning, GA 31905-5810. The telephone numbers to call are DSN 835-1410/7174 or commercial (404) 545-1410/7174.

SOLDIERS WHO ARE SCHEDULED to come to Fort Benning to attend the U.S. Army Sniper Course need to be informed of the following:

To enter the course, a soldier must meet all the prerequisites outlined in DA Pamphlet 351-4, Army Formal Schools Catalog, 1 October 1990. If on separate rations, he must be issued meal cards from his parent unit before reporting to the course.

He must bring the following items with him:

- Five copies of orders (10 copies for National Guardsmen and Army Reservists).
- Medical records (clearance for physical training if over 40 years of age).
- DA Forms 2A and 2-1.
- Weapon qualification card (within past six months).
- Identification card and tags.
- Four sets of BDUs, hot weather or regular.
- Two pairs boots (combat, jungle).
- Two BDU caps.
- Army grey PT uniform (seasonal), complete with running shoes.

- Field jacket and black work gloves (seasonal).
- Earplugs with case.
- Padlock, combination or key.
- Undergarments, toiletries, and additional items, as necessary.
- Civilian clothes.

In addition to this list, soldiers may want to bring the following optional items to aid them in the course:

- Small hand saw.
- Knife (except lock-blades, switch-blades, and knives with blades that extend over six inches).
- Pruning shears.
- Camouflage sniper's veil.
- 550 cord.
- 100-mile-per-hour tape.

All of the TA-50 items required, as well as weapons and necessary equipment not mentioned above, will be issued to the soldiers once they have in-processed.

Soldiers attending the course must report to the school's headquarters (Building 4475) in the Harmony Church area of Fort Benning not later than 1200 on the class reporting date. To obtain directions to this location, they should report to the Fort Benning Information Center (at the main gate) or to the Post Staff Duty Officer in Infantry Hall (Building 4).

For further information on the U.S. Army Sniper Course, contact the operations section at DSN 784-7455/7438 or commercial (404) 544-7455/7438. During non-duty hours, call the staff duty NCO at the 2d Battalion, 29th Infantry headquarters, DSN 784-6742/6951 or commercial (404) 544-6741/6951.

BEFORE REPORTING FOR THE TOW Leader Course, soldiers need to be aware of the following information:

To enter the course, the soldiers must meet all prerequisites as outlined in DA Pamphlet 351-4, Army Formal Schools Catalog, 1 October 1990.

The following is a list of items each must bring with him to the course:

- Six copies of his orders.
- Valid identification card.
- Valid secret clearance (noted on orders).

- Identification tags with chains.
- One U.S. Army grey PT uniform.
- Four sets of BDUs.
- Two pairs of boots.
- One pair of black gloves with inserts (seasonal).

- One BDU field jacket (seasonal).
- Two black ink pens.
- Note pad.
- 201 file or DA Forms 2-1 and 2A.

Soldiers attending the U.S. Army TOW Leader Course must report to Building 17, Wilkins Hall, Stairwell H-16 in the main post area of Fort Benning between the hours of 1300 and 1900 on the day before the course begins. After in-processing, each student will be issued TA-50 equipment for use during the course.

It is advisable for soldiers attending on a temporary duty (TDY) and return basis to receive a partial payment from their units before they leave for the course. The Fort Benning Finance and Accounting Office will not issue checks until one week after a class begins.

Any additional questions pertaining to in-processing should be addressed to Commander, HHC, 29th Infantry, ATTN: Student Operations, DSN 784-3747 or commercial (404) 545-3747/1768.

Commanders and trainers who need more information about the course itself are encouraged to write to Commandant, U.S. Army Infantry School, ATTN: Company B, 2d Battalion, 29th Infantry, Fort Benning, GA 31905-5595; or to call DSN 784-6474 or commercial (404) 544-6474/6606. During non-duty hours, call the staff duty NCO, 2d Battalion, 29th Infantry, DSN 784-6742/6951 or commercial (404) 544-6741/6951.

THE PRECISION GUNNERY System (PGS), a retroreflective laser trainer, is now being developed to serve as the Army's newest Bradley gunnery training device. It is mounted on a Bradley fighting vehicle in much the same way MILES is mounted.

The PGS will feature an eye-safe laser transmitter-receiver and a computer called the main electronic unit (MEU). Targets equipped with retroreflectors

send back to the system's receiver the transmitted laser beams fired from a BFV. The MEU then calculates the distance to the targets, the speed of the targets, the speed of the BFV, and the ballistic characteristics of the ammunition selected. Upon completion of an engagement, the MEU provides a printout of hit and miss information.

The PGS is electronically designed to inject the images of 25mm and coaxial machinegun tracer rounds and TOW flare obscuration effects into the gunner's and the vehicle commander's sights. This allows the gunner or the commander to see the ballistic path of the rounds being fired and to make burst-on-target corrections.

The PGS offers several key advantages over the current training devices: Mounted and dismounted training is integrated; the training cost is reduced because there is no need for live ammunition; and training is no longer restricted to ranges.

The expected basis of issue is 13 sets per Bradley battalion, and the first-unit-equipped date is projected to be the third quarter of Fiscal Year 1993.

A HOTLINE HAS BEEN established for the office of TSM-Soldier at Fort

Benning (Training and Doctrine Command Systems Manager-Soldier). It will enable soldiers and commanders to call any hour of the day and night with their recommendations on what a soldier wears, carries, or consumes in a tactical environment.

The Army — in its efforts to modernize doctrine, equipment, and support for the soldier — relies heavily on input from the field. TSM-Soldier is seeking recommendations for improving the battlefield capabilities of lethality, command and control, survivability, sustainment, and mobility, along with lightening the soldier's load and improving his quality of life in the field.

Until a toll-free number can be established, the hotline number will be DSN 835-1245 or commercial (404) 545-1245. The toll-free number will be published as soon as it is available.

THE INFANTRY SCHOOL HOTLINE is maintained specifically to receive questions and comments from the field. The number is DSN 835-7693; commercial (404) 545-7693.

Questions are recorded, and answers are returned within 48 hours. Lengthy questions or comments should be sent

in writing to Commandant, USAIS, ATTN: ATSH-ES, Fort Benning, GA 31905-5420.

MOBILE TRAINING TEAMS (MTTs) from the 29th Infantry at Fort Benning can now teach three courses to units in the field — the Sniper Course, the TOW Leaders Course, and the Infantry Mortar Platoon Leaders Course.

Units that request these teams will have to pay temporary duty expenses. For more information, anyone who is interested may call DSN 835-3464, or commercial (404) 545-3464.

THE BRADLEY GUNNERY MANUAL (FM 23-1) dated March 1991 has undergone technical and editorial changes that are aimed at better defining the gunner language and correcting errors.

BT VIII A, task 2 (HE Area Engagement) has become a subject of controversy between objective and subjective scoring procedures. No objective scoring device has been fielded. In the interim, the 29th Infantry is recommending an alternate multiple-point engagement of three trucks from 800 to 1400 meters.

THE NATIONAL INFANTRY Museum prepared a special exhibit relating to the World War II service of the 361st Infantry Regiment for display when the regiment's association dedicated their monument on the museum's grounds. Memorabilia and photographs belonging to members were shown. The regiment served with the 91st Infantry Division in combat during the Italian campaigns of Rome-Arno, North Apennines, and Po Valley.

Donations of items used in the Persian Gulf War continue. Other recent donations of special note are an 1867 edition of *Upton's Infantry Tactics*, East German uniforms and equipment donated by the German liaison officer to Fort Benning, items from Operation

JUST CAUSE that were captured by elements of the 2d Ranger Battalion, and a book *The Guadalcanal Legacy*. INFANTRY Magazine continues to donate review copies of books it has received.

A group of Boy Scouts have volunteered their services in a project to aid the museum. They will remove rust from historic property such as armored vehicles, artillery pieces, and other outdoor equipment on the grounds of the museum and then paint the cleaned areas.

The museum's gift shop has continued to grow. It offers for sale pure silver commemorative coins of all recent wars through DESERT STORM, as well as many other items.

The National Infantry Museum Society, formed at Fort Benning a number of years ago to assist the museum with financial and volunteer support, is open to anyone who is interested in joining. The cost is \$2.00 for a one-year membership or \$10.00 for a lifetime membership.

Additional information about the museum and the society is available from the Director, National Infantry Museum, Fort Benning, GA 31905-5273; telephone DSN 835-2958, or commercial (404) 545-2958.





Advisor Lessons Learned

MAJOR MARTIN N. STANTON

I didn't ask for an advisory duty assignment in Saudi Arabia, but I did accept it. And as it turned out, I could not have made a better choice. I arrived in Saudi Arabia a year before the start of Operation DESERT STORM, when there were only a few U.S. advisors in that country. At times I found myself saying that I was at least seeing a place not many U.S. soldiers would ever get to see. Little did I know!

I went to war with my host unit and took part in the battle for Khafji and the drive on Kuwait City. All in all it was an excellent tour, and I learned a lot. As a result of my experiences, I would like to offer the following bits of advice to all advisors-to-be. It is not perfect advice, but I think it will be helpful, not only to advisors going to Saudi Arabia or another country in Southwest Asia, but to all advisors who find they must deal with a vastly different culture.

Learn as much as you can about the customs of the country to which you are assigned. At first, conversation will be awkward both because of the language barrier (a large one in my case) and because your counterparts will be "feeling you out." A knowledge of the country's history is very useful. It serves as a conversational ice breaker and also demonstrates that you were interested enough to learn something before you showed up.

A knowledge of etiquette and day-to-day manners is also critical, especially in a place like Saudi Arabia where the culture is so different from our own. Initial impressions are most important. If you can start off by conducting yourself properly and not fumbling around, you're ahead of the game and again will show your new counterparts that you cared enough to learn about them.

Another point about manners. If you do something wrong, apologize, but don't make a big deal out of it. Most people, regardless of nationality, are more than understanding with a new person's unfamiliarity with their culture. So it's not necessary to walk around on eggshells.

Getting your counterpart or his friends to teach you the language is also a good way of breaking the ice. (It's also a good way to teach some of them more English.) It shows you're willing to learn from them, which will increase their confidence in you and make it easier for them to follow your advice. Besides, knowing the language comes in handy in your dealings on the civilian economy.

Eat the food; it won't kill you. You hear all sorts of horror stories about what people eat in certain parts of the world. At least I did, and I honestly didn't know what to expect.

As it turned out, the worst I could

say about the food in my host nation was that it was sort of bland and lacked variety, especially in the field. For the most part, Arabs, for example, are generally too well mannered to play the old "Let's-give-this-to-the-American-and-watch-him-eat-it" game.

There are, however, a few things to remember. As appalling as it is to us and our ethos of leadership, in a lot of foreign armies the officers eat first and the troops last. Attempts to change this are met with blank stares or outright hostility. Trying to set a personal example and not eating before the troops just means that you won't eat very much, or that you'll eat a lot of MREs by yourself. More important, meals usually amount to a large social gathering in most of the Arab military units that I have observed, and you cannot afford to cut yourself out of this interaction.

Too, in some Arab countries, people eat with their hands from a large communal dish. Just remember to touch nothing with your left hand (my solution was to sit on it) and dig in. Eating rice with your bare hands is an art, and it's good to let your counterparts teach you how to do it.

Learn the history of their army and their units. Your counterparts expect you to know something about your own army's history, and it pleases them if you respect the history of theirs. In

addition to giving you another ice-breaking topic of conversation, this knowledge may serve to clarify for you why that army's units are deployed the way they are and why they have the missions they have.

For example, the two major units of the Saudi National Guard, the 1st and 2d Mechanized Brigades, are permanently stationed in Riyadh and Hofuf, respectively, the two most critical areas — politically and economically — in Saudi Arabia. The Ministry of Defense's ground forces are positioned along the country's borders. There is a historical reason for this, which is much too long to explain here, but in understanding it, I gained a better understanding of my brigade's purpose and missions.

Learn as much as you can about your unit's organization, weapon systems, vehicles, and equipment. If you're to be an effective advisor to that unit, you must learn all you can about it. This requires a good bit of study on your part, followed by some subtle sleuthing.

Talk to your counterparts, and in these conversations try to discover what the unit actually has and how they operate. (Like our own Army, sometimes their authorizations and doctrinal organization for combat may not be the same as what's on the ground.) The only way to give good advice and assistance is to actually get out and look at what the unit has. Only when you have a clear picture can you begin to offer advice that makes sense.

Do not be afraid to ask your counterparts if you can go "bilge crawling" in their vehicles. Some of the officers may be shocked, at least initially, but once they realize you are not going to inspect them but are only trying to learn about their vehicles, they will be flattered that you chose their unit. The old guard will never enter the motor pool, but you may influence some of the younger officers to become more involved in maintenance. Anything you can do to better your understanding of their maintenance procedures, problems, and status will be all for the good in the long run.

Take some time and watch them. The temptation to jump right in and start

advising is pretty strong, believe me. But before you do that, take a deep breath, then sit down and watch for a while. Most armies do not meet our professional standards, and you can expect that 90 percent of what you see can be fixed or improved in some way. Watch and observe for at least a few weeks, if you can afford the time, always remembering that as simple as some things seem, they may not be that easy to solve. Make sure of where you're going and what you're going to say before you start advising.

Be available. Don't expect to be accepted in the unit the first day you report in. It is going to take a while for that unit, and its officers and men, to accept you. And they will certainly observe you carefully before they trust you enough to ask for your opinion or advice.

At first, all you can do is to be polite, friendly, and inquisitive. You can offer suggestions, but not too many. And don't be offended if no one picks up on them, at least initially.

The first time you are asked for your advice you will know the unit is beginning to accept you, and you should feel pretty good about it. To encourage this, you must make yourself available. Attend all training and planning sessions. Go to lunches. Look for other functions during which your advice might be solicited.

When you're first asked for advice, be as helpful as you possibly can. If you can't give the information or assistance right then, follow up as soon as possible. Once your counterparts realize you are there to help them and that you will get answers for them, their questions will become more frequent.

Don't do their work for them. Remember, you are not in that unit to do someone else's work. Tell your counterparts how to do something, give them examples and demonstrations if you must, but do not do their jobs for them.

Be on time. People in other countries of the world don't operate the same way we do, particularly when it concerns time. Your counterparts will probably not consider time as important as you

do; as a result, you may not find them as punctual as you would like them to be.

However, some of your counterparts probably do know our standards. Many will have attended a course of study in the United States or some other western country. Still, remember that our country and our Army are being judged by what you do in the unit. Your counterparts, therefore, can be late and unprepared; you must never be.

Concentrate on just a few things. You will not be able to do everything you want to do during your tour. After watching the unit for some time, pick out the most important aspects of its operations that you think you can improve. Then make a list of them in descending order of importance, and discuss them with the unit commander and his key staff members. (At the completion of your tour, pass on to your successor your list of things to do. It will show him where you have placed your emphasis and what you believe you have accomplished.)

Remember that the items you consider most important may not be important to the commander and his staff officers. It can be most embarrassing to you if, before consulting with your counterparts, you have developed some sort of grand plan to correct certain deficiencies only to find they are not the least bit interested in it. Talk to them first about what they consider the most important aspects of their training programs and their operational requirements. If you think they may be overlooking something, be sure to talk with them about it. But this is their army, not yours. It is better to help them with Item B while you're trying to interest them in Item A than to be adamant about A and get nothing at all done.

Understand your position. For reasons of internal security policies, many host nation units will not allow you to see their operation plans or study their contingency missions. Don't be hurt by this. You can learn a lot during casual conversations, though, or you can ask the unit commander directly. If he cannot answer your questions, he will tell you so. But don't ask too many, or

you will soon find that you are not only unwanted and but also distrusted. You will be amazed at what you can learn, but please don't do anything so dumb as trying to enter restricted areas or peek at files. You are not a spy; your interest is in developing a mission essential task list for your host unit.

Travel when you can. In your leisure time you should do as much traveling as possible in your host country. This will give you something else to talk about with your counterparts and will also broaden your own horizons. And you never know when the knowledge you have gathered during such travels will be useful. For example, in the fall of 1989 I would never have guessed that my knowledge of the Eastern Province of Saudi Arabia would be useful for more than party conversation.

Accept all invitations, if you can. The only way you will ever gain true acceptance from your counterparts is to socialize with them. If you're invited to lunch or dinner, by all means go. Find out as much as you can about the particular function and the protocol that may be involved. If you are invited to a function that will make a serious dent in your work or leave plans, make an honest excuse. Then reciprocate, if possible, either in your quarters or at a local establishment. There may be some among your counterparts that you want to avoid as much as possible; do

so, but not at the expense of denigrating your position.

Remember that you have no command authority. Many U.S. officers seem to feel that an advisor is the de facto commander of his counterpart's unit. That may have been true during the Vietnam War, but it is no longer true. The fastest way to alienate your counterparts is to use your command voice with them. As a general rule, the only time you should jump up and down and start directing people is when safety is being compromised and people are about to be killed or maimed. In short, if you come on too strong you will accomplish absolutely nothing and may as well go home.

Like it or not, you must be "Mister Nice Guy." Offer suggestions in terms of "here is a technique you may want to think about." If a counterpart does something stupid, say that you have done the same sort of thing in the past and explain what steps you took to keep from doing it again. Advise and correct where you can, but don't keep hounding your counterparts about their mistakes. The worst thing you can do is to take an approach that seems to say, "I am an American and I'm the expert. Do it this way, therefore, because I said so and I know more than you do." At the same time, be prepared to defend your rationale.

Don't become one of them. Maintain

your dignity at all times, as well as your own counsel. Do not become a source of supply. And don't think you have to follow all of their customs. After all, a respect for another's customs goes both ways.

At the same time, you are expected to know everything about the United States. You will get questions about all sorts of things. To many of my counterparts, the U.S. was a fabulous land of riches and wild women. Our dating customs were by far the most popular subject among the junior officers in my host unit. But expect almost any kind of question about our country; this comes with the territory.

In summary, I enjoyed my tour as an advisor. I was able to get a close and personal look at a fascinating foreign culture and to work with a good group of people at the same time.

Although the work was sometimes frustrating, its attractions far outweighed its faults. If you can be patient and maintain a sense of humor, you'll do all right, and if you're offered an opportunity like this, don't let it pass you by.

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Advanced Combat Rifle A Commonsense Approach

MAJOR RODNEY W. JOYE

Small arms design rarely departs much from the status quo. Historically, it has evolved gradually, and significant advances have come only every few decades at best. For example, before our

war for independence, the most influential firearm design was the flintlock musket. Over the years, rifled barrels were added to it, and in the early 19th century the percussion cap was invented.

The percussion cap permitted the invention of the revolver, and by the end of our Civil War metallic cartridge arms were in use. The breech loading cartridge arm hastened advances, but it still took

many decades for the Gatling gun, the Mauser bolt-action rifle, and the machinegun to appear.

World War II was the first time the submachinegun and the gas-operated infantry rifle were widely used. The United States fielded the M1 Garand and the Soviets introduced the early Kalashnikov design, and both are still in use throughout the world. The U.S. later fielded the M14 rifle, which was basically an M1 with such improvements as a detachable box magazine, reduced weight, and a selective fire capability.

Our first radical departure from the steel and wood rifle was the M16 series, and in 30 years it has gone through three principal fielding variations. From its beginning, it caused controversy with the traditionalists and continues to do so. But many soldiers, no doubt, have scorned new advances at each stage of firearm development. Surely, the percussion rifle caused arguments, and we continue to hear this with today's debates over the "best choice" either in rifle or in ammunition.

In the history of firearms ammunition, the clear trend over the past 200 years has been toward smaller caliber ammunition. Two centuries ago, most muskets were about .75 caliber, and by World War I most nations used ammunition close to .30 caliber. Today, many nations are using the 5.56mm. This development was possible because of scientific improvements in ballistics and weapon technology.

Although I do not want to fuel the arguments over what ammunition is best, I will say that the 5.56mm NATO and the 7.62mm NATO rounds are both well suited for specific missions. There is nothing wrong with either round when it is used properly, but both can stand some ballistic improvement. I want to focus on the new 5.56mm bull pup weapon designs, however, and at the same time offer some ideas about ballistic improvements that I believe can easily make any 5.56mm weapon more effective. (It is not my intent to advocate any particular rifle manufacturer. Except for manufacturers of equipment now being used, I will not use manufacturers' names or model designations.)

As I began testing the bull pup rifle, it became clear that if I was to assess the limits and capabilities of the design, I would need to know what it could do with the most favorable ammunition as well as with standard issue ammunition. To give it a fair test, I also had to use the most favorable ammunition in the comparison rifle, the M16A2. (Although space prevents me from giving the full details of the various tests I conducted, I am willing to make the details, including test conditions and ammunition loads, available to anyone who wants to see them.)

I do not believe there is much to be gained from going to ammunition smaller than .22 caliber. Regardless of whether the ammunition is caseless or conventional, with the technology available in the foreseeable future, projectiles of smaller bore will not be able to retain enough energy at longer ranges. Small bore projectiles generally rely on speed to generate the energy needed for reliable target damage. At short ranges, any 5.56mm NATO round will perform well, but at long ranges, light projectiles do not retain energy. The M193 5.56mm NATO round has always suffered from this problem. Even the improved M855 5.56mm NATO round can still stand some ballistic energy improvements.

There are two ways to increase bullet weight with the objective of increasing energy retention in a projectile. First, the diameter of the projectile can be increased from .22 caliber to .28, .30, or more, with a corresponding increase in bullet length and weight. The second method is to increase the length of the .22 caliber projectile.

An increase in length and weight of ammunition, when combined with the proper rate of rifling twist in the weapon, will dramatically improve penetration, accuracy, and energy retention at long ranges. These improvements can be achieved through properly designed ammunition without other changes to a weapon design. The only trade-off is a slight reduction in projectile velocity when heavier bullets are used. This approach was used in the product improvements in the

M16A2 rifle when M855 ammunition was developed and fielded.

The key to obtaining better accuracy, range, and terminal bullet performance with small bore weapons is to strike the right balance of bullet weight, bullet speed, bullet shape, and rate of rifling twist. Therefore, before considering which rifle design is best for military use, the desired caliber and ballistics must be identified.

Projectiles generate target damage with energy. Terminal projectile energy is generated from a combination of speed and projectile weight. A feather that leaves the firing line at 10,000 feet per second does not have enough mass to retain its energy and may travel only a few feet. If it strikes a target, it is unlikely to do any damage. Conversely, if a two-pound stone is tossed at a speed of only five feet per second, it is also not likely to do any serious damage. But if that same stone is thrust at a target at 3,000 feet per second, it is likely to do tremendous damage and will retain a significant amount of energy for long distances.

If tactical and logistical reasons dictate that the 5.56mm NATO round continue as the small arms chambering, that may be a wise decision, but I believe the round can still stand some ballistic improvement. For purposes of this article, the assumption is that the 5.56mm NATO will continue to be the caliber of any new combat rifle.

In its original configuration, the M193 5.56mm NATO cartridge relied on pushing a light bullet (55 grains) at high speed (3,250 feet per second). This principle worked fine at close ranges (under 200 meters), but at longer ranges it left much room for improvement. The 55-grain full metal jacket boat tail (FMJBT) military bullet was too light to retain its energy at long range, and it was not accurate enough when used in the M16A1 with a rifling rate of twist of 1:12 (one revolution in 12 inches of travel).

The M855 5.56mm cartridge is an improvement, but it is still not the ideal projectile weight for the .224 bore weapon. This cartridge weighs only seven grains more than its predecessor

yet yields noticeable improvements for ballistics and accuracy when used in the proper barrels. I believe my tests indicated that when used in barrels with either a 1:7 twist (like the M16A2) or a 1:9 twist (like many other military rifles), the ideal bullet weight for this caliber was 68 or 69 grains.

The 68-grain bullet that I used for the tests greatly improved the rifle's accuracy. It provided vastly improved wind-bucking characteristics and improved the level of terminal energy expended on targets at all ranges. The proper selection of bullet shape also has a strong positive influence on down range speed and energy retention. Thus, a bullet with a high ballistic coefficient moves through the air more efficiently, thereby reducing the rate of loss for both speed and energy. Generally, FMJBT bullets have a high ballistic coefficient.

Another major factor that must be considered for any .22 caliber military rifle is the speed at which the projectile is driven. Frequently, the best accuracy will be obtained when the cartridge travels at moderate speeds. Like a toy top, a bullet spinning at low speed gains some stability but may still wobble. As the speed increases, it becomes more stable until at some point the increasing speed provides less stability (based on the bullet's size, weight, and shape). In the case of the 5.56mm NATO cartridge, my tests with heavy bullets indicated clearly defined parameters for projectile stability at around 2,800 to 2,900 feet per second.

Finally, we should look at the rate of twist for the rifling in the barrels. After testing several 5.56mm chambered weapons, each with a different rate of twist, I found the absolute best for the 5.56mm NATO round was 1:9. This twist stabilized all bullet weights better than either the 1:7, the 1:10, or the 1:12.

Additionally, the 1:9 twist provided the best accuracy with the older M193 55-grain ammunition. This can eliminate the logistical problems we now have with greatly reduced performance when the M193 ammunition is used in the M16A2 or the M855 ammunition in the M16A1.

Specifying a 1:9 rifling twist would be a no-cost option if done through new

weapon procurement. For such a minor specification, it would be foolish not to use the twist that is best suited to the bore size of the projectile. Barrels with 1:9 rifling will provide longer barrel life, thus extending their serviceable periods and saving money.

Through careful selection of ammunition and rifling specifications, we can obtain less than minute of angle (MOA) groups from combat rifles at 100 meters, thus making the 5.56mm a true long range round. (My tests with the M16A2 and the tested bull pup rifle yielded one-half inch groups and three-eighths inch groups respectively.) These are commonsense modifications that will improve our soldiers' ability to use their weapons more effectively in any environment.

ERGONOMIC WEAPONS

With the present small arms technology, and without developing efficient caseless ammunition, the greatest innovation that has occurred is the development of ergonomic weapons. One of these weapons, the ergonomic rifle, is commonly known as a bull pup.

Currently, several bull pup rifles are in use throughout the world, and most designs appear to be coming from Europe.

The British Army has adopted one, as have the Austrian, Australian, and New Zealand armies. Even the United States Customs Service has fielded more than 1,800 bull pup rifles in the past three years and it reports great success with them.

Although these rifles differ in design detail, they share some basic characteristics. For instance, they have synthetic material stocks that provide great strength with little weight, and the stocks are hollow to allow such working mechanisms as the hammer and trigger groups to be placed in space that is unusable on conventional rifles. Usually, the detachable magazine and working mechanisms (like bolts and hammer mechanisms) are located inside the butt of the weapon—well behind the trigger.

Some bull pups have a modular

design that permits rapid interchangeability of such components as barrels, optics, and operating groups. Quality bull pups are designed to improve the performance of conventional rifles, but in a much more compact and durable package. Most important, they are well-thought-out designs that fit the human body better than conventional weapons.

Because I was testing at my own expense, I tested only two versions of one bull pup rifle design, which I will refer to as the generic bull pup (GBP). They were tested as they came out of the box, without any modifications.

The GBP I tested offered many innovations that are valuable for military use. It had a 20-inch barrel with a 1:9 twist, was shorter than M16 rifles, and featured interchangeability of all its major components through a modular design. It was extremely accurate and durable and could be reconfigured rapidly for any conceivable military small arms mission.

The barrel options included 14-, 16-, and 20-inch barrels and a 24-inch bipod heavy barrel (BHB) for the light machinegun configuration. Equipped with a 20-inch barrel, the GBP was 31 inches long, as opposed to the M16A2, which is 39.62 inches long. (I tested all but the 14-inch barrel.)

I found that the rifle's ergonomic design placed all safety and firing controls in locations that simplified their operation for any shooter and were in positions that a firer could reach naturally with either hand. It was a truly ambidextrous rifle. (For left-handed shooters, the bolt and ejection port can be reversed so that expended brass will be ejected from the left side of the rifle, thus eliminating any need for brass deflectors.)

The standard bull pup rifle is equipped with a 1.5-power optical sight with a combat loop reticle mounted in the carrying handle. For specialized use, a GBP equipped with a special receiver can accept night observation devices, sniper optics, or any STANAG mount sighting equipment. The system will retain its zero when removed and reinstalled, which means that one rifle can have several pre-zeroed sighting

systems instantly available. All components, except for the optics, are interchangeable between the various models.

The GBP has an enlarged trigger guard that permits a shooter to fire the weapon while wearing arctic mittens. (The entire hand is placed inside the trigger guard for firing.) Stocks are available in any camouflage including olive drab, black, white, and tan. All weapon configurations (except for the 14-inch barrel) have a retractable vertical front pistol grip for the non-firing hand. This grip provides an exceptionally steady firing position for semiautomatic fire and tremendous control for automatic fire. The GBP does not have a selector switch, being

equipped with an ambidextrous two-stage trigger and a positive cross bolt safety.

When firing in the semiautomatic mode, therefore, the shooter operates the trigger as he would on any semiautomatic weapon. When he wants full automatic fire, he pulls the trigger back to the second stage and the weapon will fire at a cyclic rate of about 700 rounds per minute. The hammer pack can be changed to provide a three-round burst capability.

Within 20 seconds, the weapon can be disassembled into six modular groups (stock, barrel, receiver, bolt carrier group, hammer group, and magazine). When disassembled, all

operating systems are easy to reach for inspection and maintenance, including all locking lugs. The locking lugs, unlike those on the M16, are fully exposed and easy to clean.

Aside from maintenance, the modular system offers a tremendous tactical advantage for an infantryman. If any weapon is damaged, by battle or accident, it can be restored to operational status in seconds by using spare modules or by cannibalizing another weapon in a squad. Barrels can be changed in about the same time it takes to change an M60 machinegun barrel and without heat protection.

The GBP design allows an M203 to remain in operation even when it is not actually mounted on a rifle. Since the M203 is mounted to a detachable barrel (by using a snap-on plastic butt plate on the rifle barrel chamber), the grenade launcher is not dependent on the basic rifle. The two can be used together as we now use the M16/M203 combination, or they can be used separately the way the M79 was used in the past.

This weapon offers distinct advantages over conventional military rifles because it can be configured to fit any special mission. Tank crewmen may want their GBPs equipped with the 14-inch barrel, while mechanized and airmobile infantrymen may want them equipped with the 16-inch barrel to permit more freedom of movement inside armored personnel carriers and helicopters. Light and airborne infantrymen could be equipped with the 20-inch barrel. For special operations units that need other capabilities, the GBP can be converted within seconds to a 9mm NATO configuration by changing the bolt and barrel. None of the reconfigurations require tools or armorers.

No matter how well designed a rifle may be, it is worthless if it cannot reliably deliver a lethal round to any target within its ballistic range. I conducted extensive live fire tests with the GBP in two configurations — the standard sighted rifle with a 16-inch barrel and a special receiver rifle with a 3.5x10.5 power sniper scope and 20- and 24-inch barrels. Both rifles were



Standard bull pup rifle with 16-inch barrel.



Standard bull pup disassembled into six major groups: Stock group, hammer/trigger pack, bolt group, barrel group, receiver group, and magazine.

amazingly accurate. (All GBP barrels have a 1:9 rifling twist except for the 24-inch bipod heavy barrel, which has a 1:7 twist like the M16A2.)

Throughout my tests, all of the ammunition (2,000 rounds) functioned flawlessly, but the 68-grain match bullet and M855 ammunition produced the best accuracy.

I found the GBP superbly reliable and accurate. This particular rifle is so well designed that I was hard-pressed to find anything to criticize. The tested weapons performed flawlessly with live ammunition. Any soldier armed with a bull pup rifle that incorporated the tested design features would certainly have a

significant edge on the battlefield. The weapon did have some difficulty feeding and ejecting blank ammunition, but this is a minor problem that can easily be corrected with slight modifications to the blank adapter.

For many years, the United States had an aversion to using weapons that were designed overseas. In recent years, that attitude has changed. Currently, our military uses an Italian designed pistol (the M9) and a Belgian designed squad automatic weapon (M249). But the United States Government has wisely insisted that these weapons be produced in the United States under license of the original firm.

Perhaps we should continue that wisdom when we select a new battle rifle. If there is an ideal rifle already in production, we should use it — not reinvent it. This will result in a superb weapon for our troops and a tremendous saving in developmental costs for the taxpayer.

Major Rodney W. Joye has had assignments as a mechanized infantry platoon leader, a weapons platoon leader, and a battalion and brigade assistant operations officer in the 3d and 24th Infantry Divisions, and as a rifle company commander in the 30th Separate Infantry Brigade (Mechanized). He has served on the staff of the National Guard Bureau and is currently the Army National Guard Force Modernization Officer for First U.S. Army.

Javelin: A Leap Forward

CAPTAIN JOHN T. DAVIS

The Javelin, previously known as the Advanced Antitank Weapon System-Medium (AAWS-M), is being developed as a replacement for the aging and much maligned wire-guided M47 Dragon.

The Javelin is a strategically deployable, man-portable, medium antitank weapon system. It can be dropped by parachute from an aircraft, carried over short distances, and employed by one soldier. Javelin technology, which is effective under obscured battlefield conditions, also enables a soldier to kill any enemy tank at ranges out to 2,000 meters. The Javelin features an integrated day/night (thermal) capability and is effective in countermeasure environments.

Although the Javelin is not as light as we would like, at 49.5 pounds it compares favorably to a Dragon (73.2 pounds) that is similarly equipped (with a four-hour day/night capability).

The Javelin consists of only two components — a command launch unit

(CLU) (which weighs 14.1 pounds with battery and carrying case) and a round of ammunition (which weighs 35.4 pounds). The Dragon, by contrast, consists of three components — a day tracker (8.6 pounds with carrying case), a night tracker (32.8 pounds with one battery, one coolant bottle, and carrying case), and a round of ammunition (28.8 pounds) with its limited countermeasure effectiveness.

Unlike the Dragon night tracker, the Javelin launch unit does not require coolant bottles to operate. The Javelin's expendables include one standard BA5590 lithium (SINCGARS) battery (2.5 pounds), which will function for four continuous hours. To operate for four hours in a limited visibility environment, the Dragon requires two nonstandard batteries at 1.5 pounds each and two coolant bottles at 1.5 pounds each.

The Javelin provides the soldier and his leaders with significantly more

flexibility in both fire planning and employment. Thus, the launch unit can be attached to the missile for an antitank capability, or it can be used alone for day or night surveillance.

The survivability of the infantry antitank gunner has been significantly improved through the combination of greater standoff, the Javelin's fire-and-forget technology, reduced launch signature, and the ability to fire from enclosures.

With a standoff twice that of the Dragon, the Javelin enables a soldier to engage tanks effectively beyond the effective range of machineguns, thereby negating the weapon of choice for suppressing antitank fire. This advantage is further improved by the soldier's ability to engage targets from virtually any firing position.

The weapon's smart-missile technology releases the soldier from the requirement to track the target. With the Javelin, he needs only to identify

and acquire his target, lock on, and fire — the missile does the rest. Once the Javelin is fired, the gunner can take cover, move to a different position, or reload and acquire another target while the first missile is still in flight.

The Javelin's soft launch does not cause a dust cloud to attract the enemy's attention and the inevitable suppressive fire that follows. Further, without the significant backblast, overpressure, and toxic gases normally generated during the firing of a missile, the soldier can also engage targets from enclosures.

The Javelin is the most lethal antitank weapon in the world. With it, a soldier can kill any enemy tank using either a top-attack or a direct-attack mode of fire. Top attack is the preferred method of engagement, because the top of the tank is the most vulnerable. But if the tank should move to a position protected by overhead cover (under a bridge, for example), a Javelin gunner, with the push of a button, can select the direct-attack mode and engage the target from any angle. The weapon's lethality is further improved through increased missile speed, an increased rate of fire, and a new tandem warhead.

The Javelin program has received some bad press as a result of a combination of cost overruns and a lack of understanding of the tremendous advantages to be gained from the leap-ahead technology incorporated into the focal plane array (FPA) guidance

system. FPA technology incorporates imaging infrared sensors and automatic in-flight tracking capabilities with a resulting fire-and-forget capability.

An extended engineering, manufacturing, and development test phase will



reduce the technological risks associated with the development of the FPA guidance system. To date, all of the guided flight tests have been direct hits. Targets have been engaged at ranges

from 545 meters to 1,200 meters under day and night conditions, and the methods of engagement have included both the top-attack and the direct-attack modes of fire.

The type of technical testing currently being conducted requires the use of unmanned firing platforms. These platforms have been placed in the raised (standing) position, the lowered (prone) position, and the intermittent (kneeling) position. Firing has been successfully conducted from a room-sized enclosure with only one standard window and one standard door for ventilation.

The development and fielding of the Javelin — the most advanced antitank weapon in the world today — is the Infantry School's number one antitank weapon priority. The Javelin will begin replacing the Dragon in U.S. Army and Marine Corps Infantry units and Army combat engineer units worldwide beginning in the third quarter of Fiscal Year 1996. With it, the Infantryman will have the means to attack, kill, and survive on the combined arms battlefield of the future.

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Assuming Leadership

LIEUTENANT COLONEL COLE C. KINGSEED

Many commanders face upcoming changes of command with mixed emotions — trepidation, or a sense of loss, on one hand, and relief that they have survived the rigors of command on the other. My own emotions on

giving up battalion command bordered on profound sadness. It was not so much that I minded relinquishing command. A unit needs the infusion of fresh ideas, whether the incumbent commander admits it or not. But I faced the distinct

possibility I might never again serve as close to frontline soldiers. That prospect saddened me, because I truly enjoyed commanding young soldiers united in the common cause of defending this great nation.

As the inevitable day approached, I took time to reflect on the factors that contributed to what I believe was a highly successful command tour. Specifically, I pondered what advice I would give to junior leaders who were about to assume the responsibility of leading and commanding soldiers. The thoughts I offer here are based on personal experience gained during 19 years of commissioned service that included command of a rifle platoon, a combat support company, and an infantry COHORT battalion. These remarks are applicable to officers and noncommissioned officers serving in leadership positions from squad to battalion level. In an attempt to offer a manageable number of recommendations and lessons, I have sorted them into six general categories.

Command Vision. In assuming any position of leadership, a leader must have a clear vision of what and where he wants his unit to be in six, 12, and 24 months. This vision allows him to direct all of his efforts toward a single attainable goal.

The Army recognizes the importance of the concept of command vision and incorporates it into all precommand courses at battalion level. But there is no similar instruction for company commanders and first sergeants, and they are the ones who must implement battalion policy and focus individual training tasks to support collective training objectives.

The concept of command vision is equally important within the noncommissioned officer corps. Although squad leaders and platoon sergeants generally do not publish written philosophies, they should have a conceptual framework that provides central direction to their units.

Without such a vision, a young leader may deviate from implementing his training plan. For example, in my battalion, I made field marching an integral part of my program to build a battle-hardened, physically tough light infantry force. Twice during my command, several seasoned company commanders approached me to recommend that I cancel the monthly march. I

patiently listened to their reasons but emphatically denied their requests. If they had proposed an alternative that would have achieved my goal, I would have accepted their recommendations. As it was, their only interest was in canceling the terrain walk.

Young leaders also have an obligation to plan for the period beyond their own command tours. Even knowing that their successors may alter their programs, those programs will greatly facilitate the continued development of a combat ready force.

Discipline. History has taught us that well disciplined armies are uniformly more successful than less disciplined ones. Discipline is the fabric that builds cohesive, motivated, and trained military units. Disciplined soldiers have trust and confidence in themselves and their leaders, and being confident of victory gives them an inherent psychological advantage over their adversaries.

Discipline is more than obedience to orders and respect for authority. It has an entirely different dimension that includes field discipline. General George Patton said it best when he stated that the purpose of discipline was to ensure obedience and orderly movement; to produce synthetic courage; to provide methods of combat; and to prevent or delay the breakdown of the first three in the excitement of battle. In short, disciplined units can absorb a solid punch and counterattack to destroy a numerically superior enemy.

Combat discipline is ensuring that fighting positions are dug to an appropriate depth and have overhead cover. It is sergeants checking and rechecking men and equipment before and during a mission. It is daily weapon cleaning in the field and the proper care of ammunition. It is also individual movement and fighting techniques.

Soldiers learn quickly whether a squad leader or company commander can meet the rigors of combat and whether he will compromise on the combat fundamentals. The soldiers may complain if their leader directs them to attack the same hill again in training because the platoon failed to meet the standard the first time. They may curse

and grumble under their breath when he forces them to dig a little deeper or to improve the camouflage on the machinegun position. But the same soldiers will respect him because they know he will enforce the same high standards in a realistic combat situation.

Example. Leading by example is an indispensable quality of successful leaders. All the great leaders and battle captains had it. There is no challenge infantrymen cannot meet if their squad leader or company first sergeant is in the vanguard leading them onward. Leading by example applies to physical training tests, field maneuvers, athletics, and simply caring for soldiers and their families.

When a leader initially steps in front of a formation, the soldiers watch his every mannerism and idiosyncrasy. They notice whether his boots are shined, whether his haircut is within regulations, and whether he can complete the four-mile platoon run in the morning. First impressions are often lasting impressions.

Many units have NCO professional development programs that recognize individual excellence. As a commander, I placed a great deal of emphasis on NCO professional development and insisted that first sergeants post the names of the NCOs who gained special recognition. My purpose was not only to recognize excellence in the NCO corps but also to instill a sense of pride in the squads and platoons whose NCOs had made the extra effort to achieve professional excellence.

Soldiers know if their leaders wear Expert Infantryman Badges, if their squad leader is airborne or air assault qualified, if their lieutenant or platoon sergeant wears the Ranger tab. Leaders should take pride in setting an example for their men to emulate.

Today's soldiers expect sergeants and lieutenants to be physically fit, mentally tough, tactically and technically proficient. They expect their squad and platoon leaders to be able to negotiate unfamiliar terrain. Moreover, the soldiers have a right to expect their leaders to overcome seemingly insurmountable odds. After all, their lives

are in their leaders' hands.

Open Communications. A leader must not be afraid to talk *to* his soldiers, but should not talk *at* them. There is an importance difference. The former method develops teamwork, while the latter frequently develops into a "we-they" relationship. Informed soldiers will always perform at a higher level than soldiers in units whose leaders are reluctant to discuss training schedules, tactical plans, and other activities.

Strange as it may seem, many junior leaders are reluctant to take time to address their soldiers. Too frequently, lieutenants in my battalion would come to me and say it was the platoon sergeants' job to run the platoon in garrison while they, the platoon leaders, commanded the platoons in the field. I have a fundamental problem with this argument.

Many areas traditionally do fall into the purview of either officer or NCO business, but communicating with soldiers is not one of them. In this area, there is no such thing as officer business or noncommissioned officer business. There is only leader business.

Soldiers need to hear from their leaders. Periodically, they need to hear from them directly, without the filtering process that can distort much of the message. Often we hear the phrase, "What the captain meant to say ... " Why not let the soldiers hear what the captain meant to say from the captain himself? Then there will be no mistake about his guidance and intent. Something is drastically wrong in a company in which its commander does not speak to his soldiers several times a week.

As a battalion commander, I addressed the soldiers every month at the battalion awards ceremony and before every significant training event. This was an opportunity for me to outline the battalion's priorities and alert the soldiers to the major activities we had planned for the upcoming months. In addition, I met my first sergeants for lunch at the dining facility every month to solicit their views on the best way to improve training and the welfare of the soldiers. Similarly, I convened a meeting with the platoon

sergeants quarterly. Although I frequently saw these leaders daily, these more formal meetings served as a forum that helped me foster bilateral communications with my key unit leaders.

As a general rule, I directed the company commanders and platoon leaders to talk to their respective units each Friday afternoon and conduct an after action review of the past week's activities and the highlights of the next



two weeks of training. I was not as successful as I would have liked, but it was extremely gratifying to see a second lieutenant gather his platoon and outline what was going to occur the following week. That lieutenant established a rapport with his men that would translate into teamwork in combat.

Consistency. Consistency is more difficult to achieve than many leaders imagine, but nothing irritates soldiers more than vacillating leaders who develop double standards. A simple rule is to be tough but fair.

In an attempt to establish uniformity of standards, I published written duties and responsibilities for leaders at all levels and then discussed my expectations with the leaders and the men. There was no doubt that I held the platoon sergeants personally responsible and accountable for the care and maintenance of all the battalion's crew-served weapons. Every platoon sergeant in the battalion knew that when I inspected his platoon sector my initial stop would be the M60 machinegun position. The sergeants knew it, the officers knew it, and the soldiers knew it.

The soldiers also had company standing operating procedures (SOPs)

and periodic memoranda from me in which I stressed combat fundamentals. The standard for acceptable performance was always the same. The construction of fighting positions, the proper wear of field uniforms, notes on a night attack were all subjects that I discussed with the soldiers. It was a lot easier for them to understand a one-page note from the commander than a lengthy tactical SOP.

Consistency is not limited to the field. Soldiers routinely express their concern about alleged favoritism in the administration of non-judicial punishment, the awards program, and educational opportunities, to cite a few examples. Perfect consistency is probably not possible, since leaders must take into account overall performance and extenuating circumstances. Still, the goal should be to be as consistent as possible. If the unit understands the commander's standards, and if he takes the time to discuss his reasons for recommending one soldier for civil schooling or promotion and not another, he will avoid many of the problems that confront junior leaders.

Finally, a new commander should have fun leading soldiers. General Dwight D. Eisenhower lived by the simple maxim, "Take your job seriously, never yourself." A leader should understand the rewards of leading young soldiers before he assumes his leadership position. If he does, he will enjoy the time he spends with soldiers and will be far more relaxed. Moreover, the sense of pride he instills in his organization will increase his unit's combat readiness.

Commanding and leading soldiers is the greatest job in the greatest profession in the world. In addition to making a valuable contribution to the nation, leaders also make a profound impression on the soldiers they lead. The opportunities are endless, and their time with the soldiers passes all too quickly.

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The CBU-89 "Gator" Minefield

CAPTAIN DANIEL L. THOMAS

The ability to establish hasty obstacles offers a number of advantages to a tactical commander, and the more emplacement methods he has available the better. Although commanders frequently employ artillery delivered minefields, or FASCAM (family of scatterable mines), few seem to know about air-delivered minefields, especially those created by the CBU-89 Gator munition.

The Air Force can use a variety of different munitions. One of its family of munitions is the cluster bomb unit (CBU), which dispenses multiple small bomblets to attack large area targets. The dispenser, which is called a suspension unit universal (SUU), resembles the average bomb, but its interior contains bomb live units (BLUs). Once a CBU is released from an aircraft and detonates, or "functions" at a preset time or altitude, the BLUs are scattered to the ground.

Once released, different types of

bomblets react differently. Some fire fragmentation or armor-piercing projectiles on impact, and others launch projectiles toward ground targets while suspended in the air. The CBU-89 Gator, for example, scatters small mines over a target area (Figure 1).

The CBU-89 uses an SUU-64 dispenser that ejects 72 BLU-91 antitank (AT) mines and 22 BLU-92 antipersonnel (AP) mines to the ground. The BLU-91 and BLU-92 mines are actually XM74 and XM75 ground-emplaced mine-scattering system (GEMSS) mines that have been modified for the Gator munition.

The BLU-91 antitank mine, once deployed on the ground, uses a magnetic sensor to detect a target passing over it. If it detects a vehicle, it detonates and fires a shaped charge into the target (Figure 2). The mine also contains anti-handling circuitry that causes it to detonate if it is tampered with or if it detects low battery voltage. The mine

self-destructs if it does not detect a target in a pre-set amount of time.

The BLU-92 antipersonnel mine looks much like the BLU-91, but its function is to disrupt the mine-clearing efforts of dismounted personnel. Once it reaches the ground, it deploys four tripline sensors out to a distance of 40 feet. If a tripwire is disturbed, the mine's warhead detonates and showers the area with fragments. It has the same anti-handling and self-destruct devices as the BLU-91.

When the BLUs reach the ground, they deploy in a limited pattern, whose exact shape and dimensions depend upon adjustments in the aircraft's dive angle, speed, and altitude. Figure 3 shows some sample pattern dimensions of a single munition. (Field Manual 101-50-20 shows additional possibilities.) The number of mines per square meter depends on the overall pattern size. The first entry in Figure 3 shows the data for what may be the most useful spread of mines — a field 106 x 116 meters that places the antitank mines about 13 meters apart.

A CBU-89 munition weighs 651 pounds, and a single aircraft, depending on the type, can deliver several. But,

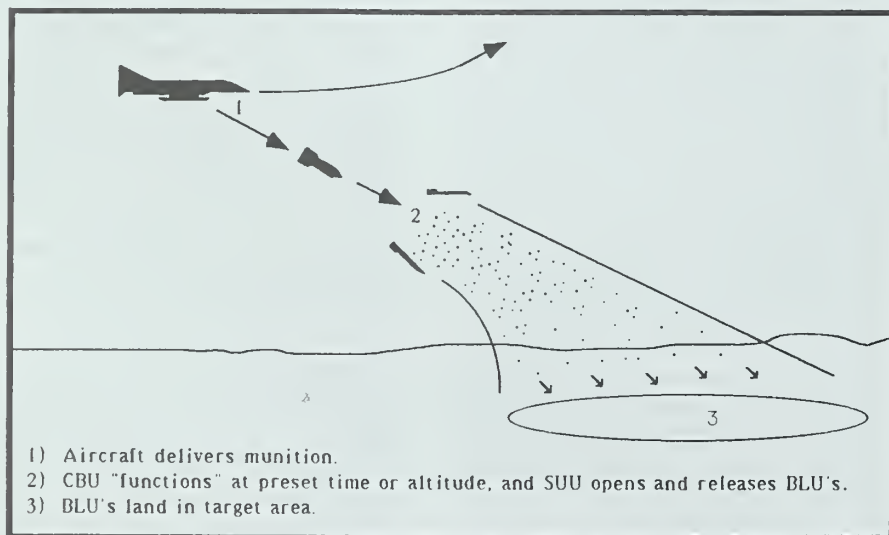


Figure 1. Cluster munition delivery

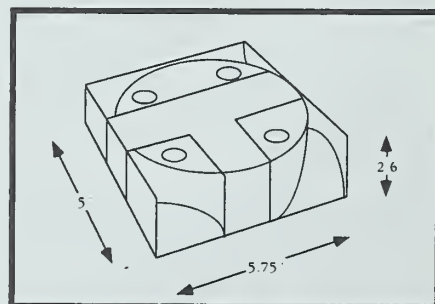


Figure 2. BLU-91

	Aircraft Dive Angle	Aircraft Altitude (feet)	Aircraft Airspeed (knots)	Function Altitude or Time	Pattern Dimensions (meters)	Avg. Distance Between Each AT Mine (meters)
1	0	600	400	4.51 sec.	106 x 116	13
2	0	5000	400	500 ft	106 x 114	13
3	0	5000	350	500 ft	97 x 108	12
4	0	5000	450	500 ft	117 x 120	14
5	0	5000	550	500 ft	135 x 129	15.5
6	20	2000	400	500 ft	155 x 144	17.5
7	20	2500	400	500 ft	141 x 134	16
8	30	3000	400	500 ft	109 x 115	13
9	30	4500	500	500 ft	107 x 113	13
10	0	600	450	4.51 sec	129 x 130	15
11	10	1200	500	4.51 sec	43 x 70	6.5

Figure 3. Sample of pattern dimensions

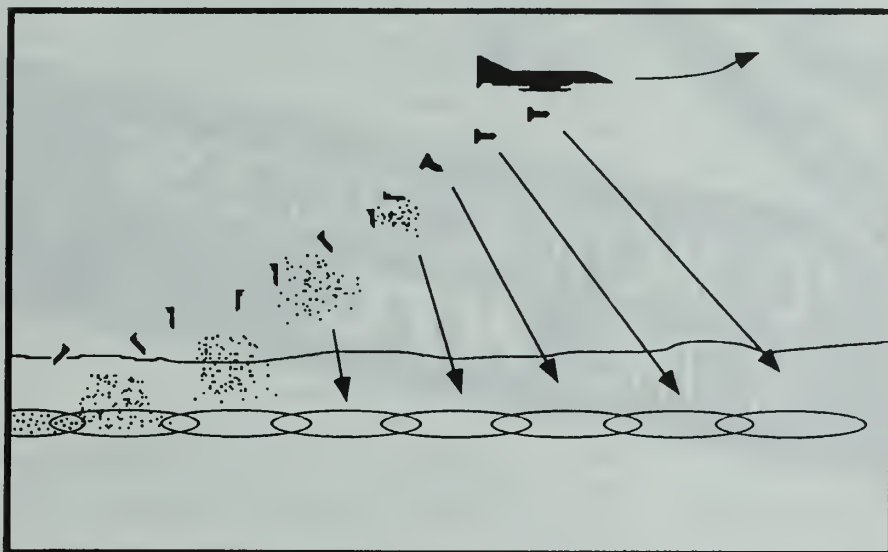


Figure 4. Stick delivery

the actual bomb load also depends upon the threat environment in which the aircraft will fly. If the plan calls for delivering a minefield behind the enemy's forward line of troops, the aircraft will have to carry a number of defensive systems on its weapon pylons. For example, if a commander wants an A-10 to deliver a minefield behind enemy lines, the aircraft will probably have to carry an ECM pod and chaff and flare dispensers, leaving less payload capacity for munitions. On the other hand, if the minefield is delivered in an area controlled by friendly forces, an A-10 can probably carry twice the number of munitions. Depending on the situation, an aircraft flying close air

support can carry 10 to 25 CBU-89s.

An aircraft can also deploy a large, linear minefield by dropping a series of bombs in what is known as a stick delivery. A stick is the overall pattern formed by the combined effects of a series of munitions. For example, a minefield 1,060 meters by 116 meters results when an aircraft drops 10 CBU-89s at the most favorable dive angle, altitude, and speed (Figure 4).

A CBU-89 minefield offers a commander several tactical options during both offensive and defensive operations. Its particular advantages are the near instant delivery and surprise appearance of a formidable obstacle. For example, during a defense in sector, a battalion

task force commander may want to coax the enemy into attacking along a specific avenue of approach by leaving it relatively unprotected. But the task force commander plans to reorient his forces to cover this avenue of approach once the enemy begins moving and also plans to fly two sorties of A-10s into the area. Because of the low threat environment (assuming the area is under friendly control), each aircraft can carry a load of 20 CBU-89s. This flight will eventually deploy 464,000 square meters of minefield to cover the previously unprotected avenue of approach.

A Gator minefield also offers other possibilities. A commander can use it as a contingency option to block enemy penetrations during defensive operations or to protect an exposed flank during offensive operations. A unit may also scatter BLU-91s over an enemy's unoccupied defensive positions or drop CBU-89s over an enemy tank reserve to keep it from counterattacking.

In conclusion, a CBU-89 Gator minefield is a valuable tool that a commander can use in a variety of tactical situations. As the emphasis on combined arms and joint operations increases, so does the importance of knowing the options available from the other services.

If an Army unit wants to use CBU-89s during wartime, it should convey its interest through the supporting Air Force liaison officer to insure that the munitions will be available when they are needed. Additionally, because the actual use of Gator minefields requires planning and coordination, it is important for a unit to simulate their deployment during peacetime exercises.

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TO TACTICAL SUCCESS AT THE NTC

Captain Franklin F. Childress
Captain Michael Prevou

Many company commanders whose units train at the National Training Center (NTC) find, when they attend a task force after action review (AAR), that the results are not as good as they had hoped. They find themselves wishing they had been aware during their train-up period of some of the lessons and tactical techniques they learned during the training at the NTC. Although most of them had looked through the old AAR packets from previous rotations, they had failed to appreciate the real value of those lessons.

The key to success is figuring out what can go wrong, then setting up a system to help prevent it from going wrong. The hard part, however, is knowing what to focus on, what works, and what doesn't. The only way to know that is experience.

The following advice is based on some "secrets" we discovered while serving as observer-controllers for more than 50 company teams at the NTC. We have arranged these lessons under the battlefield operating systems:

Maneuver

A major key to tank gunnery success is boresighting. Improper boresighting, or failure to boresight at all, is the

major reason gunners miss their targets at the NTC. Boresight devices must be calibrated and everyone must know how to use them. Commanders should see that the -10 manual is used by the numbers, and that boresighting is done often.

A boresight line can be set up with the LOGPAC (logistical package) operation, and the company master gunner can supervise the operation. The baseline should be placed near the maintenance team so that problems can be solved quickly. Vehicles can also boresight from hide or firing positions; all they need is a target at a known range, such as a target reference point (TRP) or a VS-17 panel.

If a company occupies a position at night, the first boresighting can't wait until morning. A target or panel should be set up in a central location that is visible to all sights, both day and night. An example might be a .50 caliber ammunition can filled with charcoal for a thermal signature while a flashlight taped to the stake provides a daylight signature.

A tank commander uses a flashlight to help him see the aiming point of the MBD (muzzle boresight device). The crew uses the standard boresighting procedures in the -10 manual. Adjusting the thermal imaging sight is critical, and the focus must be clear. To make sure the thermal is properly adjusted, one of the combat service support vehicles can

go out to 5,000 meters, then drive slowly back to the position. The gunners should have no trouble distinguishing the target vehicle.

MILES equipment should be boresighted as often as possible. For the BFV-mounted TOW, this often means re-verifying the boresight each time the vehicle halts. MILES gunnery should be performed in each assembly area and on each battle position to verify that each system can still kill vehicles at extended ranges.

Tank crews that do only MRS (muzzle reference system) updates instead of boresighting don't do as well as those that boresight often and then conduct MRS updates from their fighting positions.

Designated tanks and fire support vehicles (FIST-Vs) should use their lasers against the opposing force (OPFOR) as they move into the engagement area, announcing the range so that Bradley fighting vehicles (BFVs) can open fire at trigger lines with company or platoon volleys. Good cross-talk between BFVs and tank leaders will allow the BFVs to open fire at maximum range with their TOWs. The recommended trigger lines at the NTC are 3,000 meters for TOWs, 2,500 meters for tanks, 1,700 meters for 25mm chain guns, and 900 meters for Dragons.

RETURN FIRES

When a vehicle makes contact with the OPFOR and is fired upon, it should return fire, even if the OPFOR is firing at 3,800 meters. This does three things: First, it may suppress the OPFOR gunner and make him break his missile track and miss. Second, it lets him know that someone saw him. And third, it lets the rest of the friendly team know exactly where the OPFOR is so they can help the first vehicle suppress or destroy him.

In a defensive fight, the sooner a gunner opens fire, the longer the enemy will spend in the engagement area (EA). For example, if he opens fire at 2,000 meters and breaks contact at 1,000 meters, his EA is only 1,000 meters deep. An enemy moving at 18 to 20 kilometers per hour will pass through that EA in about three minutes. If he opens fire at 3,000 meters, though, the EA becomes 2,000 meters deep and will take six minutes to cross.

Gunners should not be afraid to use battlesight once the enemy comes within 1,500 meters. The commander must establish the battlesight range on the basis of METT-T (mission, enemy, terrain, troops available, and time), and specify that range in the operations order. (Field Manual 17-12-1 recommends using Firing Table 105-A-3 to determine the best range.)

Possible OPFOR killsacks should be templated on the map. When a friendly unit enters a templated OPFOR killsack, it should change to movement by bounding overwatch and make the most of terrain driving.

Once a platoon occupies its battle position, its leaders should begin preparing range cards and sketches. Usually at the NTC today, all of a company's combat vehicles will

pull up to the crest of a hill and sit there for at least 30 minutes while the crews draw range cards and sketches. Of course, this procedure may let OPFOR observers locate every combat vehicle by unit type.

A better technique is to have only one vehicle at a time pull forward, do its range card and sketch, and then return to its hide position. A similar technique can be used when proofing holes. One vehicle should stay forward to proof them all. Tank and Bradley commanders or gunners may view their positions from another platoon vehicle.

Rehearsing is important, but this is often one of the first steps leaders omit when time is short. One way to do a rehearsal is to gather all the tank and Bradley commanders on the battle position and make sure they know the basic plan (paragraphs 2 and 3a), then have them bring their vehicles into hasty fighting positions and observe the EA. The commander's HMMWV and the maintenance and medical tracks can be used to drive through the EA, starting on the OPFOR side from as far as they can see (up to about six kilometers). The vehicles can move at 18 to 20 kilometers per hour and deploy from a single line to three vehicles abreast as the OPFOR is expected to do. Using his radio, the commander can explain what each friendly vehicle crew should see. As the target vehicles close to the trigger lines, they stop and mark the area with a TRP if this has not already been done. If any friendly vehicle notes dead space in its area, it should either notify the fire support team to plot fires in that area or mark the enemy side of the dead space for an obstacle.

BREAKPOINT

The commander describes to the company where the artillery rounds will land, where and when the artillery may shift fires, and where the breakpoint and final protective fires will be. Each crew must understand the TRPs and possible enemy courses of action. This type of rehearsal will take no more than an hour, and it will ensure that everyone understands the plan before they begin preparing their positions.

During assembly area or battle position preparation periods, a company absolutely must operate its command post (CP), stay on the task force net, and provide security. One technique is to set up the CP as described in the command and control section of this article, manning the radios in shifts with the fire support crew and medics. The commander, the XO, and the first sergeant can also take turns in the CP. The mechanics and the headquarters vehicle crews can perform external security around the CP and the trains vehicles.

One man, usually the commander's or the XO's gunner, can man the weapons in the hatch of one of the tanks or BFVs while two other soldiers with night vision goggles and M16 rifles walk the internal perimeter. The CP coordinates the starting of vehicles and conducts communication checks on either FM or wire at least every 30 minutes.

Load plans require attention. While the M-2 Bradley and the M-1 tank are not spacious at best, a poor load plan can make performing routine tasks both difficult and dangerous. Whatever load plan is used, it must be enforced. The commander must not allow a vehicle to leave the assembly area until its load plan is straight.

The load plan must include an opportunity to redistribute stored ammunition. This can be done only in concealed positions (turret-down or hide) if the vehicles have them or between positions as they move.

Mechanized infantry teams must have contingency plans for vehicles that are damaged or that have to be deadlined for maintenance during an attack. Soldiers must know exactly which equipment and personnel are to be shifted to other platoon vehicles and what and who is to stay on or with the vehicle that is left behind. The company team must help platoons that do not have the vehicles to take care of all of their important equipment and personnel. A recommended technique is to have the company executive officer or maintenance track pick up stranded soldiers and their equipment to get them to the battle.

Thermal acquisition is a problem for most units during live fire and force-on-force training. Crews expect to see the burning barn doors they saw on Table VIII. Crews at home station should be trained to acquire real vehicles and plywood targets under such adverse conditions as smoke, dust, and a simulated chemical environment.

Tank-killer crews and platoons are key to success in the defense. Thus, if a platoon or several crews are extraordinarily skillful at gunnery, they might be positioned to cover the most decisive sector of the unit's engagement area. Killer crews often prove to be a decisive factor in a company's success. In fact the killer vehicles at the NTC are almost always those that fire the most rounds.

Usually, the crews that hit at 2,500 meters or more were trained at their home stations in long range gunnery techniques. A unit's gunnery training for both MILES and live fire, therefore, should incorporate ranges at and beyond the planning ranges.

When the commander applies the *troops* portion of his METT-T analysis, he should consider his weapon systems not only by number but by quality as well. The best shooters (top gun platoon, most successful in previous battles, and the like) should be put in the best position to do the most killing.

TRPs should be standardized throughout the unit. Decoys should be placed throughout the battle position to draw fire and deceive the OPFOR as to the size of force that confronts him.

Intelligence

Commanders often lose sight of the fact that a dismounted infantryman is one of the best intelligence gathering sources on the battlefield. When used as an observation post he

can locate enemy patrols and troops massing for an attack or warn of an impending air attack.

In the offense, troops should be dismounted to clear defiles, broken terrain, and other possible ambush locations. A dismounted soldier is much better able to locate the enemy and pass on his disposition than the crew of a vehicle that blunders into an ambush or a kill sack.

Any intelligence that is received over the task force net should then be disseminated to the Bradley and tank commanders, along with any intelligence the fire support team gets over its net that will help the company track the battle.

Leaders must enforce operations security. In the defense, each position must be policed to ensure that garbage, excess Class IV supplies, tools, and ammunition are not left lying around. An improperly policed position often gives the enemy visual clues that will help him spot it.

Most defensive positions are already known to the OPFOR before he crosses his line of departure. If a unit stays in or around a position for any length of time, OPFOR reconnaissance teams will soon pinpoint the location, and reconnaissance elements will be sent to verify it.

Infantrymen and tanks should be used to augment the scouts. Infantry squads can conduct patrols to verify OPFOR presence; tanks can provide needed thermal capability and firepower; both can man OPs and provide a forward screen. Each infantry platoon should be trained to perform scouting missions.

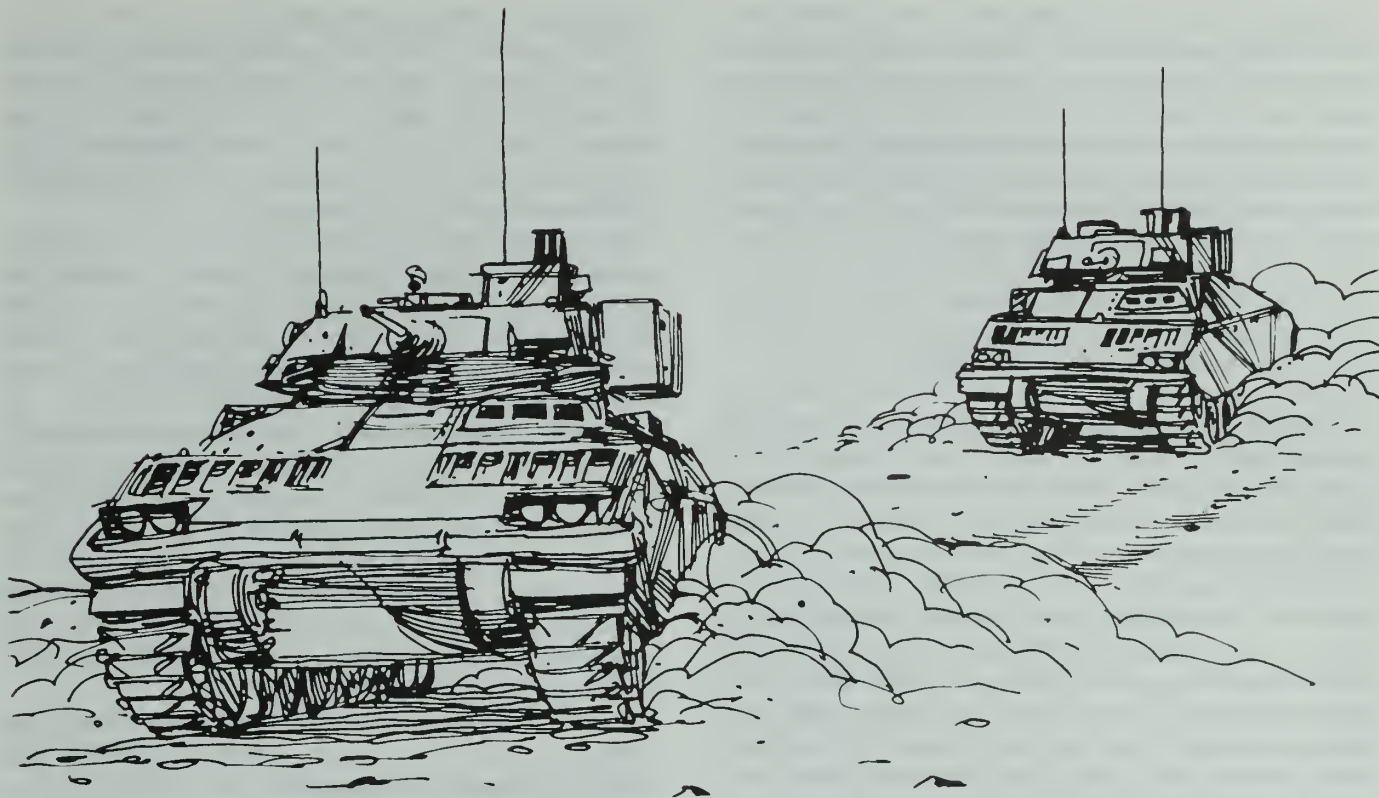
Units should patrol vigorously during limited visibility and maintain a vigilant watch. The OPFOR scouts do as well as they do at the NTC partly because more than half of the soldiers in the units they locate are asleep. Many of the others are not making use of their thermal sights, or those at the OPs are not paying attention. One way to make soldiers more vigilant is to put a bounty on the head of any OPFOR scout they capture.

Fire Support

A tank or a Bradley should never be sent into an area where an artillery round can do the job. If the artillery is not ready to shoot, a unit should wait — unless it has a tremendous numerical advantage and can provide effective internal overwatch. A unit that charges into an OPFOR position with no effective overwatch or fire support ensures that its vehicles will be destroyed.

The company fire support officer must attend all task force operations orders briefings as well as backbriefs with the commander. He is the obvious choice to replace the company commander until the XO can take charge of the battle. He probably knows more about the task force's plan than anyone else in the company.

The FSO is also an integral part of the maneuver commander's fire plan. He must help the commander establish his battle position, and he must develop his own



fire support plan on the basis of the commander's intent. He should develop a fire support execution matrix and a target list and pass both to all the platoon leaders and attached units. He should brief the fire support portions of his commander's OPORD, use lasers on targets for range determination, help site obstacles using his targeting system, and provide expert assistance on when and where the artillery should be called on to fire.

Maintaining the fire support vehicle (FIST-V) is usually a problem. The task force must have FIST-V mechanics and prescribed load lists at their unit maintenance collection point (UMCP) or field trains.

Mortar illumination should be planned for and used in the defense. This illumination is invaluable to Dragon gunners (who have no night sight capability for their MILES) and for dismounted infantrymen. The illumination also helps Bradley and tank commanders acquire targets without looking through the vehicles' thermal sights. In the offense, mortar illumination should be set to burst on the ground on known enemy locations. This will blind enemy gunners and help a unit's navigational efforts, especially at night.

Air Defense

Stinger teams, currently mounted in HMMWVs, cannot survive alongside tanks and Bradleys. To get them under armor in a mechanized infantry company, the commander should put the Stinger gunner with the XO and in a tank company, with the FIST chief. He must bring along his AN/PRC-77 radio, which should be set on the division early

warning (DEW) net or on his platoon net, depending upon unit SOPs. The gunner can then monitor or talk on the company net on the vehicle in which he is riding.

The maneuver commander should designate air TRPs in the defense. These TRPs should be well-defined terrain features such as hilltops that everyone can see and focus their fires on.

The senior air defender in support of a company (a section sergeant or team chief) should be required to develop an air defense employment plan that supports the company scheme of maneuver and mission. He should brief the plan at the company OPORD sessions and also instruct the company's leaders on the proper methods and techniques of employing small arms or organic weapons against an OPFOR air attack.

When the commander conducts his METT-T analysis, he should consider the air defense priorities on the basis of the criticality, vulnerability, recuperability, and expected air threat to the company.

Although such air defense assets as Stinger teams and Vulcans may not be attached to an infantry company, they should be integrated into the commander's defensive fire plan. Since thorough coordination is necessary to a cohesive defense, air defense team leaders should attend the OPORD sessions to understand the commander's plan as well as to brief him on their intent.

Certain soldiers should be designated to act as air guards during periods when the unit is buttoned up against artillery fires or is in MOPP (mission oriented protective posture) IV. Accordingly, dismounted infantry and company trains personnel are usually in good positions for spotting enemy

air when the rest of the unit cannot.

If OPFOR air is active in a company's sector, a leader should not try to cover his position with smoke for camouflage. By doing so, he is more likely to pinpoint his position and give the OPFOR pilot a marker to focus on.

A stationary vehicle is much harder to spot from the air than a moving vehicle. It is also easier to use small arms for air defense from a stationary vehicle.

Mobility and Survivability

A proven technique for starting work on a defensive position before a unit occupies it is to have the soldiers fill sandbags during the hours of darkness in their assembly areas. The filled sandbags can be carried in the bustle racks of BFVs and tanks and on the BFVs' trim vanes.

The biggest constraint in emplacing a minefield is manpower. Armor and infantry soldiers, therefore, should be trained to emplace wire obstacles and minefields, and their platoon and squad leaders to mark and record minefields on DA Form 1355-1-R. An engineer team can follow, or go back later, to arm the mines. Each infantry carrier should carry a basic load of wire and mines, and each tank platoon and infantry squad should carry a picket-pounder for emplacing wire obstacles and TRPs. In addition, emplacing obstacles should be included in the company priority of work.

When digging fighting positions for armored vehicles, a dozer operator can mark the roof support of the bulldozer with chalk to indicate the depth for each vehicle. This technique gives the operator a rough idea of how far to dig before he proofs the hole.

The commander should assign responsibility for digging his, the XO's, and the fire support team's positions to the platoon leaders. The FIST-V is one of the most vulnerable vehicles and should be dug in first. (It is usually the last.) Obviously, the company won't get any fire support if its FIST-V is destroyed in the first enemy artillery barrage.

A dozer chief's job at company level should be to pick up the dozers from one unit and make sure they are passed to the next. (He does not need to stand over the dozers and watch them dig holes. That's the tank or Bradley commander's job.) Then he should make sure the dozers are passed from platoon to platoon, maintain a status board of their progress, and report that progress to the task force TOC at least every two hours. He should make sure maintenance and fuel is being provided for the dozers by the engineer company headquarters and record the appropriate times. Most of this coordination and reporting can be done by FM radio or wire.

Commanders must physically site in obstacles to make sure they support the direct fire plan, and place stakes out to show engineers their location. The engineers will decide what type of obstacle to put in each location on the basis of what it is to accomplish. A good time for a commander to mark obstacle locations is when he drives around the

engagement area looking for dead space.

Each obstacle should have a specific purpose and should be placed where it will best suit that purpose. Obstacles intended to hold the enemy are little good if they are beyond effective direct fire range or too close to friendly troops. Obstacles intended to slow the enemy while a unit withdraws should be no closer than 1,000 meters.

A unit that is given the responsibility for guarding an obstacle and closing a lane should consider rehearsing the action, the signal to arm, and the execution. Signals should be established — primary (radio), alternate (two green star clusters), and tertiary (if a soldier sees six or more enemy vehicles). Redundancy should be built in.

Tanks and Bradleys should be prepared to breach simple mine and wire obstacles without assistance. Every vehicle should carry wire cutters, a grappling hook with 75 feet of rope, a mine lasso (50 feet of rope to loop around more than one mine and pull them out with a grappling hook). Each infantry platoon should have its own breach kit consisting of at least two pairs of wire handling gloves, two concertina wire bolt cutters, two rolls of engineer tape, two VS-17 panels, and two grappling hooks.

Before telling the task force his unit has a bypass in an OPFOR obstacle, the company commander should clear through it as far as possible to make sure the bypass doesn't lead into another obstacle or a killsack.

Combat Service Support

In dealing with combat service support (CSS), all company commanders must consider the way the headquarters section is to be organized for combat. One successful technique is to have the first sergeant command the maintenance track. This allows him to provide responsive logistical support and communications, and it puts a communication specialist and a hull and turret mechanic under armor. Since the maintenance track is authorized only one radio, another radio or auxiliary must be taken from a HMMWV and mounted on the track. A mount can be ordered through Class IX supply.

The company supply sergeant must know what is required for each vehicle or squad and what is available. He should attend company orders, or at least be briefed by the first sergeant or the XO. He should keep a status book that lists not only all the personnel (battle roster) but also the prescribed load list, medical, and supply items that constitute basic loads and standard resupply packs. This book can be used to plan and cross-check the items the company orders. Each company supply sergeant should have an identical book. Tank company books must include BFV parts, and infantry company books must include tank parts.

Company CSS elements must conduct rehearsals just as the combat elements do. The first sergeant should conduct a rehearsal ensuring that each evacuation and maintenance vehicle has a strip map with every combat vehicle location shown (including attachments or other units sharing the

battle position — the battalion commander or S-3, for example), the location and route to the company collection point (CCP) and to the task force collection point. The drivers should practice finding their vehicles and driving the routes in daylight and darkness, in MOPP IV, and in MOPP IV at night.

To be responsive, the supply sergeant must maintain contact with his unit. One technique is for the commander to mount a radio in the supply truck (under the truck commander's seat) and give him the OE-254 antenna to set up. Another technique is to have the supply sergeant co-locate with another vehicle in the field trains that monitors the administrative/logistical net, usually the field trains CP. As the company calls in its statistics or sends reports, he can begin planning resupply.

When a unit is preparing prestocks of ammunition, empty crates can be used to protect the sides and top of the cache. The empty crates are filled with dirt and stacked to form a bunker. The rounds are placed inside and the front covered with additional boxes. (See "Survivability and the Tank Platoon Defense," ARMOR, January-February 1989.)

Preventive maintenance checks and services must be done daily and done properly. Drivers must clean out air filters and drain fuel filters often.

A signal for priority vehicle evacuation requirements must be worked out. One such signal is to hang a VS-17 panel on the friendly side of a vehicle. Prior to withdrawing from a defensive position, leaders must check to make sure they are not leaving any wounded or disabled crew members behind.

The company CSS planner must requisition additional filters for NBC protective masks any time the unit is attacked by an enemy blood agent. One technique is to have the supply sergeant in the field trains with a requisition form already filled out and ready to be submitted when the unit detects such an attack.

In refueling, the service-station method is the quickest. Tailgate resupply, especially for fuel, needlessly risks the loss of a tank and pump unit or a truck.

Casualty evacuation must be everyone's business. The first sergeant must manage this activity and if the primary evacuation vehicles are enroute to the forward aid station (FAS), he may need to use combat vehicles to transport casualties. The casualties should be consolidated and moved the shortest distance possible on combat vehicles.

Command and Control

Planning for an offensive operation should begin from the objective back to the line of departure, and must include such control measures as target reference points (TRPs), checkpoints, and battle positions on the objective.

TRPs must be easy to see and easy to remember. They must be identifiable during limited as well as good visibility. The following is a technique for a thermal TRP that was developed at the NTC: Take a 7.62mm ammunition can

and punch a hole about the size of a quarter in the top. Fill the can three-fourths full of diesel fuel. Insert a cotton or natural fiber type cloth in the hole and down to the bottom of the can. Close the can and light the cloth wick. Place an empty five-gallon oil can (with the top removed and six to ten air holes punched in one side and the top) over the burning can. The fuel in the ammunition can will burn for about 20 hours, thus heating the air in the five-gallon can and creating a bright thermal signature. A VS-17 panel can be added to the thermal TRP for daylight recognition and chemlights for passive identification.

In preparing orders and graphics, one way to make sure the operations order (OPORD) is quickly passed down when time is short is to give it to large elements at one time. For example, a company commander may issue his order to all his Bradley and tank commanders and to dismounted leaders as well as his platoon leaders and any attachments. Then a platoon leader may issue his orders to the entire platoon. Leaders must make sure every soldier in the company is well informed and understands his role.

At times, getting the order out presents a serious problem when time is extremely short. One technique is for the commander to give his subordinates the minimum essential information as quickly as possible. As soon as he has a better idea of how the battle will be fought, he can gather his leaders and brief them on the situation, the mission (the TF mission if that's all he knows), the way the task force commander sees the fight and his initial intent, the way the company will be deployed, and the tasks that must be done between then and X-hour. He can fill in the details later as he gets them and uses his OPORD to confirm information, make changes, and tie all the battlefield operating systems together.

A company CP should be set up so that orders and graphics can be reproduced and issued inside, out of the elements, and using light. (The only thing worse than not giving an order is to give it on the hood of a HMMWV at 0200 when it is 28 degrees, raining, and the wind is blowing the map away.) One way is to back the FIST-V up to the XO's M113 and use tarps and camouflage poles to construct an extension between the two vehicles. A medic track works well in tank companies, or the company commander's tank or Bradley can be used. The covers can be removed from the taillights to get white light. The bottom of the tarp must be secured to prevent light leaks.

Standard size map boards should be developed, and every vehicle's map board or map case should be identical. Then standard size overlays can be pre-cut and stored in empty ammunition tubes. This helps command and control when a leader has to jump to another vehicle. Map boards must be small enough to get into the hatch of a vehicle or to carry when dismounting.

The "chimpanzee drill" can be used to reproduce graphics for subordinates. The soldiers in the headquarters section can be trained to reproduce copies from the commander's original. The company master gunner or the commander's gunner can inspect them to ensure completeness. Allowing



every leader to copy his own, usually by a blue filter flashlight, leads to inconsistent graphics, bad reports, and confusion. At the least there should be a copy for each platoon leader, the XO, the FIST chief, the first sergeant, and the motor sergeant. The platoon leaders can conduct the same drill with their crews and provide an overlay to each squad leader or track commander.

Carbonless paper sets (NSN 7630-01-078-7148, paper, teletypewriter, five-page carbonless paper, 700 per set, \$29.74) work well for mass producing orders, matrices, fire plans, and the like. (A suggestion has been submitted to make and issue a preformatted execution matrix, fire support matrix, and fire plan/range sketch.)

Before deploying to the NTC, a company should make enough orders packets to last through the rotation. These should include OP order format, either five-paragraph or matrix, or both. A fire support matrix and CSS matrix can also be included. They can be stapled together and either the headquarters vehicle section or the HMMWV drivers can be trained to fill them in so that when the order is issued a copy can be handed to each leader along with the graphics.

At least two preprinted and laminated sketch cards or range cards should be made for each vehicle and dismounted fighting position. The extras will come in handy if the originals are lost or damaged.

Commanders must add company TRPs, checkpoints, engagement areas, and other control measures to the task force graphics to improve his maneuver plan and facilitate control.

Every order should include a jump plan, even if it is SOP. For example, if the commander's or the XO's vehicle is disabled, they jump to 11 then 21 then 31; if the fire support vehicle goes down, the first sergeant will pick the FSO up in the maintenance track; the mechanics use the commander's HMMWV and cross level to the M88. Tanks and Bradleys with limited fire control problems can be used as command, control, and communication vehicles even if they cannot fire their main weapons.

A company commander should get behind every weapon

system and talk to every gunner to make sure everyone understands his intent as well as to make sure he understands the capabilities and limitations of each system.

Range cards and sketches should be used as backbriefing tools. Bradley and tank commanders might describe the engagement area using a sketch and relating it to the ground. These sketches should be updated constantly with new obstacles, artillery targets, and the like.

A rehearsal kit is a good item to help convey the commander's intent during operations orders. A recommended rehearsal kit includes a 25mm ammunition can in which to store supplies; a roll or ball of string or twine to put grid lines on a terrain model; laminated 3x5 cards on which to put objectives, battle positions, and suspected enemy locations; colored tempera paint to portray the colors of the map on the terrain model; and miniature company vehicles to reflect locations in movement and on the battle position.

Using such a rehearsal kit will improve the subordinate leaders' understanding of the mission and eliminate much of the confusion that usually prevails after an oral OPORD.

Leaders must have positive control over all their elements at all times. Platoon leaders must be able to talk to their dismounted section as well as their mounted elements.

Any time a leader dismounts in an offensive operation, he should have binoculars, a map, and a radio. These items will allow him to let his boss know where he is and what is going on, and to call for fire if targets are identified.

Using a single company radio net can speed the unit's reactions in both offensive and defensive operations. On a single net, discipline is the key. The only time it is used is to report contact, send enemy locations, or for safety or self preservation. The platoon nets are used as spares to reduce electronic warfare effects and to discuss items other than enemy contact. (Example: "Red 2 this is Red 1 — meet me on one, over." "Roger, switching, out." Then, Red 1 and Red 2 switch to the first platoon frequency and talk, then return to the primary frequency.)

The company commander must talk to his company, while the XO, the battle captain, talks on the task force net. A task force commander who requires company commanders to talk to him directly doesn't understand what fighting for information is like. The company commander must be given time to develop the situation and report through the company XO.

Some commanders wonder where to put the master gunner when the battle starts. One technique is to place him in the commander's HMMWV with the radios preset to the company and task force nets. He can be used as a relay station for both the command net and the administrative/logistical net. He can also help in casualty evacuation. The first sergeant riding in the medic or maintenance track can bring wounded off the BP or to a company collection point. Then the master gunner can pick them up and take them to the battalion aid station, allowing the first sergeant and the medic to get back up front.

Each team vehicle needs its own map and radio. The

maintenance M113 and the M88 in particular need to be able to navigate since they are frequently sent on missions alone to recover broken equipment at night. It is a problem when the driver of one of these vehicles is lost or disoriented at night and cannot be found for several days, often because he either didn't have a map or couldn't call his unit because he didn't have the next day's signal operation instructions.

While wire is usually plentiful, wire reels are often in short supply. One technique is to have a welder make kite string reels from half-inch pipe. Each reel will hold more than one-fourth mile of wire. The recommended issue is one per vehicle for hot loops, one per M8 alarm, and one per dismounted position. Its shape makes reeling and unreeling the wire easy and lets the platoon use its DR8 reels of wire to run back to the company CP or OP.

Reports should be made by TRP rather than 8-digit grid coordinates. Since everyone knows the TRP locations by sight, referencing enemy locations by TRP saves the time it takes for the sender to formulate and the receiver to locate the grid on his map. This technique saves time and eliminates much confusion, especially during periods of limited visibility.

The push-button pre-sets on the VRC-12 radios or SINCARS should be standardized to facilitate the jump plan. Buttons 1-10 should be the same on each vehicle.

Finally, the desert night is unkind even to the best navigators. To avoid getting lost trying to find the TF TOC in the middle of the night for an OPORD session, the company commander should go to the TOC at last light, arrange for someone to wake him, and get some sleep before the order is issued. Or if he must stay with his company, he should reconnoiter the route to the TF TOC in daylight, mark it, and leave early enough to allow for error.

Nuclear, Biological, and Chemical

The NBC NCO must make sure replacement filters and suits are ordered after each chemical operation. Once a suit and filters are contaminated, they must be changed.

A company should not stop fighting to conduct M-256 kit tests and then tie up the command net with an NBC-1 report. One vehicle per platoon and backups, as well as the headquarters section, should be designated to do this. The motor sergeant in the maintenance carrier can do a test while the tanks and Bradleys fight, and only the needed information should be sent on the company net. Then the NBC NCO works up an NBC-1 and sends it to the task force on a net other than the TF command net (the operations and intelligence net is the recommended one). The TF then notifies the commands as necessary.

The M-8 chemical alarm must be emplaced by each platoon for each mission. A useful technique is to have a

soldier designated to emplace the alarm each time a platoon establishes a hasty position, and move the detector unit each time the wind shifts. Furthermore, he should dig the alarm in if it is emplaced forward of friendly troops. The NBC NCO should check each alarm when the company is in a defensive position or an assembly area to make sure it is operational and properly emplaced.

Since it takes at least 32 minutes to perform unmasking procedures with the M-256 kit, it is often better for the soldiers in a unit to fight dirty than to focus on getting out of their masks during the fight.

A company must have a battle drill for reacting to chemical attack. Some soldiers should be designated to check for chemicals with M-8 paper and M-256 kits and other soldiers to perform hasty decontamination with M-11 bottles. The important thing is for each soldier to know his role in a chemical environment.

If there is a contaminated area in the sector, its boundaries must be marked. Otherwise, soldiers may have accidental contact with deadly chemicals when they mark TRPs or walk off dead space.

Each platoon and squad must be capable of conducting a chemical reconnaissance. Companies are rarely augmented with help from task force or chemical units. And even if a chemical unit is available for reconnaissance purposes, infantry and tank platoons still must be prepared to provide security.

At the NTC, units are frequently in MOPP IV. To prepare for this, units must train for it at home station by conducting foot marches, attacks (mounted and dismounted), defenses, and situational training exercises in MOPP IV. As the soldiers increase the time of training in MOPP, they will become more comfortable and better able to fight in this mode.

This article is a compilation of some methods and techniques that have proved successful at the NTC. We got our information from a number of excellent NCOs and officers who work for the NTC's live fire team and from rotational units as they plied their trade in the desert. The list is by no means all-inclusive, but we hope they help you when you come to the NTC — and more important, when you go to war.

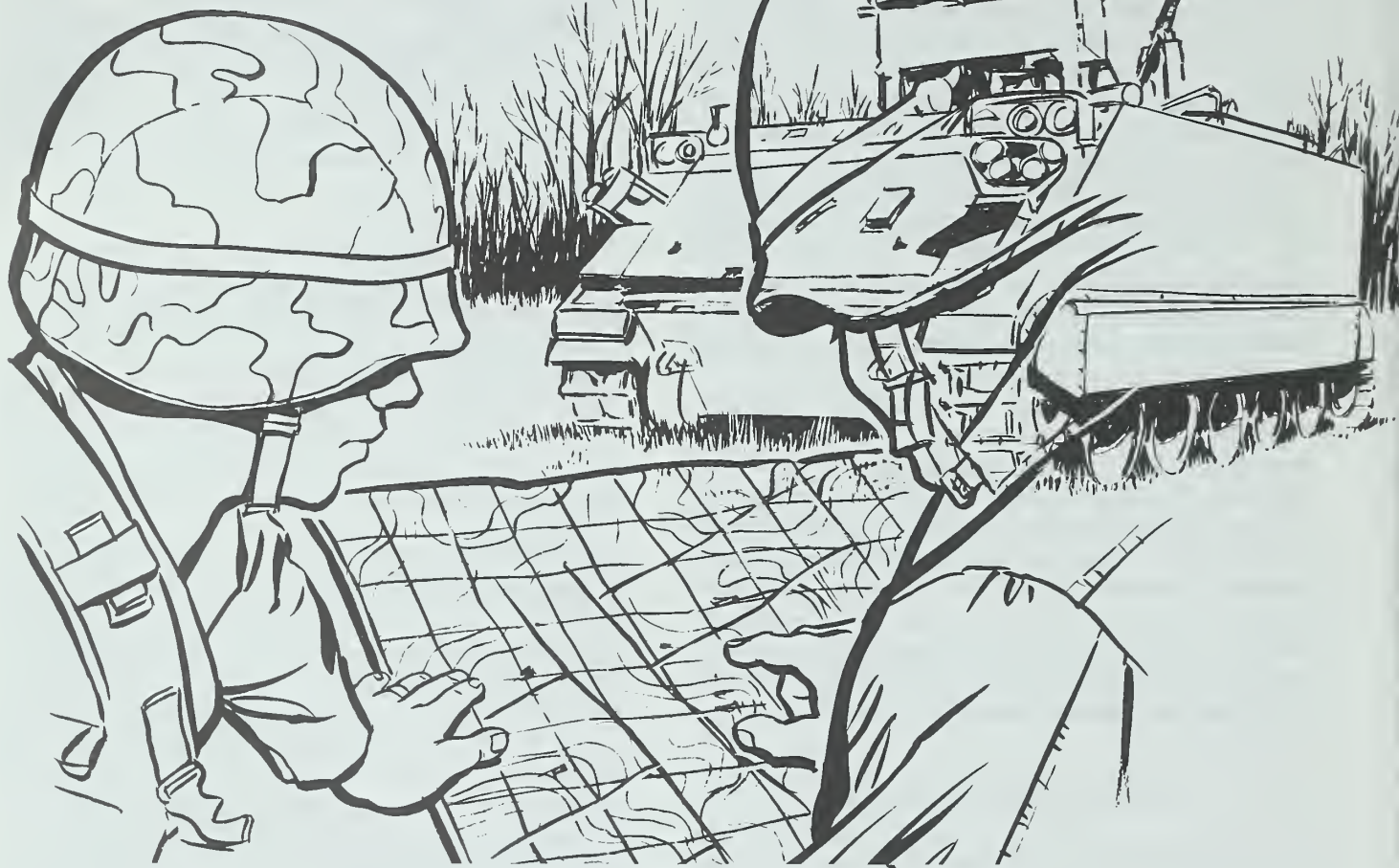
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Captain Michael Prevou has served as an armor company team trainer and a battlestaff trainer on the live fire team at the NTC. He previously commanded a tank company in the 1st Battalion, 33d Armor and a motorized infantry company in the 2d Battalion, 60th Infantry. He is a 1982 graduate of the University of Tennessee at Chattanooga and holds a master's degree from Golden Gate University. He is now a small group instructor at the Armor School.

ECHO COMPANY

IN A HEAVY TASK FORCE

Captain Edward G. Gibbons, Jr.



Since its inception, the antiarmor company (Echo Company) in a mechanized infantry battalion has achieved, at best, only inconsistent success. At first, the company lacked a body of doctrine to describe its proper utilization. Task force and company commanders relied on their experiences, professional articles, and word of mouth advice from commanders who had fought an antiarmor company successfully. (See, for example, "Echo Company: The Fifth Player," by Captain Michael S. Hackney, *INFANTRY*, July-August 1985, pages 20-24; "Echo on the Battlefield," by Captain George E. Knapp, *INFANTRY*, September-October 1985, pages 30-33; and "Echo Company," by Captains Glenn L. Burch and Christopher B. Valentine, *INFANTRY*, September-October 1986, pages 37-38.)

Later, the doctrine that was developed was vague and general, a fact highlighted by a recent study conducted at the National Training Center. The study concluded that the problem was not that the companies failed to follow the

doctrine but that the doctrine itself was incomplete. Although the Echo Company suffers from severe limitations in its equipment and organization, the main reason it has not achieved much success at the NTC is that it has not been properly employed at the task force or company team levels.

Admittedly, the doctrine is still not specific enough in many areas, but it is very clear on the organization and the role of the antiarmor company. According to Field Manual 7-91 (Tactical Employment of Antiarmor Platoons, Companies, and Battalions), for example, the task force commander "uses the antiarmor company to influence the battle without having to use tanks or infantry in a mainly antitank role." The manual goes on to explain that this frees tanks and infantry from antitank missions and allows them to be employed more effectively, and that "the preferred choice (of task organization) is to leave the company intact under the control of its commander."

This doctrinal note, recently reiterated by the Infantry

School's Directorate of Combat Developments in INFANTRY Magazine ("Echo Company: A Vital Player," September-October 1991, pages 13-14), also reflects the experiences of successful company and battalion commanders who have used Echo Company to great effect: economizing forces by massing long range antiarmor fires, thus freeing tanks and infantry to play a greater, more decisive role.

Echo Company, as presently configured, does have several endemic problems, but that is not to say that it is ineffective or that it should not be retained as a worthwhile member of the combined arms maneuver team. Previous articles by successful Echo Company commanders have demonstrated the combat potential of this force if it is used properly. By first understanding the nature of the company's very real weaknesses, we can then examine techniques for exploiting its equally real capabilities.

First and foremost among these limitations is self defense. The improved TOW vehicle (ITV) provides a stable, stationary platform for the TOW missile, but it is not designed to engage vehicles while it is moving. In addition, its air defense and area suppression capabilities are almost nonexistent. This makes the vehicle extremely vulnerable to air and ground attack.

Generally, if a moving ITV platoon makes contact with an enemy force, it has available few organic means it can call on to suppress or destroy its opponent immediately. Thus, Echo Company commanders sometimes feel as though they have stumbled into a gunfight armed only with a knife. (Platoon leaders usually try to engage chance ground and air targets on the move or from short halts with their M2 machineguns, either destroying or suppressing them and giving the TOW firing vehicles time to seek cover and bring their own systems into action. This reflects the techniques currently employed by the M901/M113-equipped platoons, which, unfortunately, enjoy limited success and sustain high losses in the process.)

To solve this problem, task force and company team commanders must thoroughly understand how the IPB (intelligence preparation of the battlefield) and the mission of an Echo Company affect the company's employment. If it is to operate independently, the task force commander should give it some tank or Bradley fighting vehicle (BFV) platoons (as he would with any other company) to ensure that it can accomplish its mission.

The second major concern is the mobility difference between the antiarmor company and the rest of the task force. The ITVs are slow, which reinforces the complaint that in the offense "Echo Company never gets into the fight." In a quarter-mile sprint, Bradleys or Abrams tanks will certainly beat the ITVs hands down. But in a movement formation where such factors as command and control, limited visibility, and the artillery's ability to keep up with maneuver units affect the task force's rate of march, this is not the problem that critics of the organization have made it out to be. The ITVs do slow the task force down, especially in rough terrain. But when they fail to play a decisive role, the real reason is usually that they have been relegated to

the rear of the task force movement formation.

To correct this problem, we should first determine why we take a combat system that has limited mobility and exacerbate that limitation by placing it in the rear of a formation. We should then direct our efforts at positioning the ITVs in our formations so that they need not rely solely on their automotive systems to get into the fight.

Another problem is that the leaders in the antiarmor company fight in a completely different environment from the one in which their crews fight. The commander, executive officer, and platoon leaders do not have the target acquisition and surveillance capabilities the ITVs have. As a result, a leader often must base his decisions on second-hand reports instead of on his immediate knowledge of the situation. In daylight, in good weather, he can use his binoculars, but at night he is relatively blind and must rely solely on the unit's organic image intensifier viewers.

Along with its tactical limitations, the company's combat support and combat service support assets are not capable of sustaining it in combat. For example, it has little maintenance support — no dedicated recovery vehicle, no attached medical personnel or ambulance, and no fire support team or vehicle. Perhaps most critical of all, the executive officer — the tactical second in command — does not have a combat vehicle. All of these sustainment areas must be addressed at task force level when the leaders are identifying tasks and purposes for the company.

Many of these inherent limitations stem from the fact that the ITV is primarily a defensive system, a brainchild of the active defense. Thus, it is no surprise that the lack of doctrinal guidance is most pronounced for offensive operations.

A heavy task force will usually conduct five types of offensive operations: deliberate attack, hasty attack, movement to contact, exploitation, and pursuit.

Hasty attacks and deliberate attacks differ only in the amount of time available for planning and preparation. The other operations employ similar techniques that are embodied in a movement to contact. The roles of the company in the task force deliberate attack and movement to contact therefore illustrate the principal techniques for its use in offensive operations.

Field Manual 71-2, Tank and Mechanized Infantry Task Force, states that the task force scheme of maneuver for a deliberate attack normally consists of three elements: main attack, supporting attack, and reserve. It makes sense, then, that Echo Company should be employed in the supporting attack role, especially with the shortage of dismounted infantrymen in a Bradley task force. By using the Echo Company in this role, the task force commander can retain his infantry and tanks for his main attack and as a reserve to exploit a penetration or complete the destruction of the enemy's position.

In this role, Echo Company can suppress or destroy forces on the main task force objective to isolate the point of penetration for the main attack. In most cases, it will fight pure, but it can be given tank or infantry platoons if

warranted by such conditions as enemy and terrain.

FM 71-2 further states that supporting attacks by fire should come from a direction other than the one used for the main attack. The NTC study mentioned earlier revealed that most units understand this, but that "this guidance is often ignored in mission orders, when the ITVs are ordered to support by fire but are relegated to the rear of the battalion formation along the main axis." This method of employment seems to stem from a concern that the slower ITVs will delay the forward progress of the main attack. This, in turn, causes the company to arrive at its support-by-fire position too late to accomplish its mission effectively.

At the task force level, the key to solving this problem is to make sure the main attack and the supporting attack are fully synchronized. Ideally, the arrival of the main attack force within the effective range of the enemy's direct fire weapons should coincide with the placement of effective friendly direct and indirect fires on the objective.

As the nucleus of the supporting attack, Echo Company can support the main attack by moving on one or more axes of advance to occupy one or more support-by-fire positions. Or it can follow the lead team along the main axis and then break off early enough to begin engaging the enemy on the objective.

ADVANTAGES

Both of these techniques have several advantages (Figure 1). If the main and supporting attacks use separate axes, the task force commander is not limited to the speed of the slowest element. The supporting attack can cross the line of departure earlier than the main attack (which also aids deception), and the main attack can cross when required and rush to seize a foothold on the objective. If the company moves with the main attack, it should follow the lead team so that it can occupy its support-by-fire position before the lead team is engaged by the enemy.

In either technique, the timing of the two attacks is critical. If the supporting element arrives too early, it is vulnerable while waiting for the main attack force to arrive. If it arrives too late, the main attack force is denied its vital support. Regardless of the supporting element's placement in the task force scheme of maneuver, the overriding goal of the supporting attack is to force the enemy to fight in two directions at the same time.

Direct fire alone, however, cannot isolate the objective. The supporting attack force — usually a stationary one with some cover and concealment — is in an ideal position to control the TF's indirect fires. For this reason, it makes sense to attach a FIST-V from another company to the Echo Company. The FIST-V looks like an ITV, moves like an ITV, and has to stop and erect its G-VLLD (ground/vehicle laser locator designator) to designate targets for Copperhead or other precision-guided munitions. This seems to be a better way of using the FIST-V than having it move along in the middle of an assaulting unit's formation. In any case, the Echo Company commander needs a dedicated

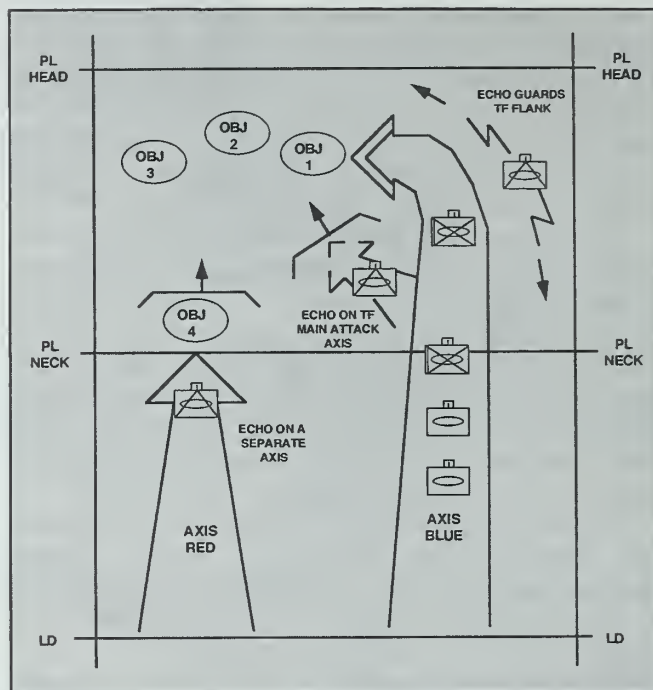


Figure 1. Echo Company using three offensive techniques — separate axis, main axis, and screen or guard.

fire support vehicle, with adequate communications. In some cases, this vehicle may have to come from the battalion's fire support element.

If the terrain is not conducive to a supporting attack by fire, another technique is to use Echo Company to supplement the scouts by screening or guarding the task force's flank. This mission can be performed at one of several points in the operation, the timing and location of which must be based on the IPB process. For example, the company can cross the line of departure before the main attack and emplace a static screen on a flank as the task force approaches its objective. But this option keeps the company from supporting the other TF elements and could even require that it be reinforced. (The unit can conduct only a static screen, because it is too slow to conduct a mobile screen of the main body's flank unless the task force commander is willing to tie his rate of movement to that of the company as it displaces from position to position.)

Echo Company may also move with the main attack or on a separate axis to screen or guard the task force's flank during the assault itself. Again, its movement and positioning should allow it to be employed rapidly and to achieve its purpose of providing early warning of a threat to the flank. The logical corollary to this technique is to use it in the TF's exploitation phase to protect the TF's flank as it penetrates deeper into the enemy rear area.

As noted above, there are few specifics that illustrate how the company is employed in the offense, and nowhere is this more apparent than for the movement to contact. FM 71-2 states that in a movement to contact the antiarmor platoons are used as flank and rear security or are positioned to overwatch the advance guard. (Needless to say, and because of the unit's known limitations, commanders must

give careful consideration to providing more detail on the way it is to perform these tasks.)

When ITV's are employed to screen or guard, the primary difference between the attack and the movement to contact is that in the attack they occupy a static position, while in the movement to contact they are usually in constant motion.

A flank guard provides security to the task force by allowing it to gain the time and space to maneuver in the event of contact. It is usually the first element to make contact in a given direction, and its mobility should be equal to that of the force it protects. But all of these considerations highlight the limitations of the ITV instead of capitalizing on its strengths. For example, if the flank guard does not get enough early warning from the scouts, or through its own efforts, then the platoon will be engaged before it can bring its TOW's to bear. Having the platoons move in bounds reduces the risk, but again the task force commander must be willing to tie his rate of march to that of the flank guards.

When the ITV's are used with the advance guard in an overwatch role, Echo Company will have to move continuously, risking engagement by the same force that contacts the advance guard. If the advance guard does make contact, the company will usually become fixed, and the task force commander will lose his ability to mass his antiarmor fires to support the main body.

Another technique sometimes used in a movement to contact is to position the antiarmor company behind the lead team (in a task force column or wedge) or teams (in a task force box or vee formation) of the task force's main body. This allows the company to move far enough forward to influence the battle and to take advantage of the protection offered by the other TF elements. Once enemy contact is made, the company can then move and mass its fires, fixing the enemy so that the task force's main body can maneuver.

This forward placement also permits the company to provide support by fire for another operation that is not usually practiced in training — covering the task force's main body as it tries to break contact and withdraw in the face of a superior enemy force.

The offense thus presents the greatest challenge in employing the antiarmor company with all of its limitations in mobility, protection, and sustainment. If we bear in mind, however, that Echo Company should attack primarily with the massed fires of its ITV's, that its positioning should be synchronized with the commitment of the task force's main effort, and that it may require task organization to accomplish its mission, then there is no reason to believe it cannot have a significant effect on the enemy and the outcome of the battle.

Even though doctrinal guidance is more explicit in spelling out how Echo Company is used in the defense, there are several ways of improving its use there as well. Generally, the company is used to provide massed antiarmor fires on enemy avenues of approach, and it frees the tanks from their more recent role as stationary gun platforms. This, in turn, gives the TF commander greater flexibility in using

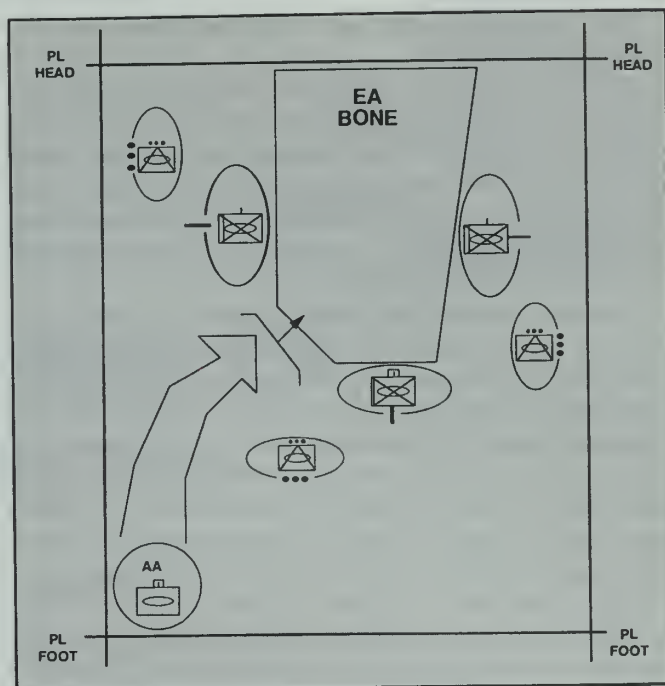


Figure 2. Echo Company in general support in the defense.

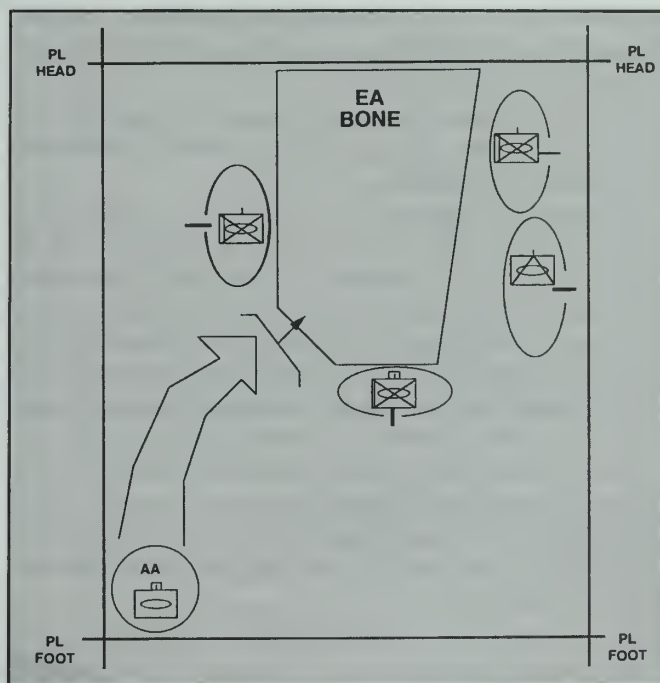


Figure 3. Echo Company in battle position.

his tanks to maneuver or to exploit opportunities.

The company is employed under the control of the company commander and can take the form of one of three techniques:

- Use the company in general support, to direct massed antiarmor fires into the task force engagement area from several battle positions (Figure 2).
- Assign the company a separate sector or battle position, depending on the defensive pattern chosen by the task force commander (Figure 3).

- Use the company as part of the task force's security force.

In determining the company's use, the task force and Echo Company commanders should use METT-T to determine when and where the decisive point in the antiarmor battle will occur and then place the company where it can make the most of its stand-off capability. This can occur from a single, company-sized battle position or from multiple platoon-sized battle positions.

The most flexible form of employment is to position the ITVs on multiple battle positions, in general support of the task force. In this way, their long-range massed fires can be directed into the engagement area from several directions under the control of a dedicated antiarmor commander. The other team commanders also have antiarmor responsibilities, but they are now free from the responsibility of fighting two battles at once — trying to destroy enemy vehicles at long range and also trying to repel an infantry assault.

TOW fires also complement tank main gun fires, providing depth to the defense and allowing the tanks to be used for such operations as counterattacks. This method also places the TOW platoons where they are better able to derive security from the other TF elements in their vicinity. Additionally, if company teams must reposition, they can do so using their dash speed while the TOW platoons overwatch their displacement.

While this employment technique is the most flexible, it is also the most difficult for the company commander to command and control.

The second technique, defense from a single battle position, can be used when the terrain supports it. If, by dispersing his TOW platoons, the company commander cannot achieve proper distribution (mass) and control of his fires, a single battle position for the Echo Company may be required. Another, less likely, consideration occurs when the task force commander's estimate tells him he needs a fifth team that is capable of retaining terrain.

If the company undertakes the third operation in the defense, one or more platoons are used to form part of the task force's security force. FM 71-2 recommends that the TOWs be positioned to cover open terrain to make the most of their range.

There are several limitations to using antiarmor this way. First, the mission detracts from the platoons' ability to prepare for defensive operations in the task force's main battle area. Additionally, the missile's time of flight makes it difficult to destroy the fleeting targets presented by infiltrating enemy reconnaissance vehicles. ITVs are great sensor platforms, but in this instance, instead of engaging targets, they should probably be used to supplement other, faster weapon systems. Finally, care must be taken in withdrawing the TOW platoons. If they are left out too long and make contact, their inability to shoot on the move will give them little chance of survival during a withdrawal under pressure.

Echo Company is vital to our ability to wage true maneuver warfare at the task force level. In the offense, dedicated to long range attacks by fire, it fixes the enemy in his position while in the defense it engages him throughout the depth of his formation. Thus, Echo Company allows the dismounted infantrymen of the task force to close with and destroy the enemy or to repel his assault, and to exploit the mobility, shock action, and firepower of the tank.

That is not to say that the company's organization is perfect or that ITVs are the vehicles it needs. With the advent of the line-of-sight antitank (LOSAT) weapon system, it is time to reconsider our employment of the antiarmor company. Indeed, if we continue using the same methods we now apply, we will be perpetuating the company's misuse — the same problem in a different wrapper.

As the foundation for the maneuver of the task force, Echo Company has a great deal of potential. By applying a few commonsense techniques, we can truly realize how great that potential is.

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TRAINING NOTES



Moving the Main CP In a Heavy Task Force

CAPTAIN ROBERT C. NEUMANN

Most of the heavy task forces that train at the National Training Center (NTC) do not seem to know when or how to move their main command posts (CPs) around the battlefield. Some typical comments on unit after action reviews are that the main CP was not positioned properly; that it moved during critical phases of the battle; that it hampered TF command, control, and synchronization; or that it lost communications with forward elements of the task force and was forced to move forward.

The problem is that these units do not habitually conduct training for their CP personnel on movement, security, and positioning. Their CP training normally focuses solely on setting up the CP and preparing plans and orders. Few units have SOPs for their command posts, and those that do usually don't follow them.

Based upon my experience at the NTC, I would like to offer some observations and techniques that may help units with their main CPs in general and with moving them in particular.

A typical heavy TF main CP is organized around the M577 armored command post vehicle. There are usually three or four M577s in the CP

— those for the S-2, the S-3, the fire support element, and the engineer — along with various numbers of wheeled vehicles, usually three to five HMMWVs and a 2½-ton cargo truck.

Attached or supporting elements — such as the ground surveillance radar section, the smoke platoon, the air defense artillery platoon, and others — sometimes stay around the TOC when they are not supporting the task force. These can add up to 15 more wheeled and tracked vehicles in the immediate CP area.

VEHICLES

To reduce the main CP signature, the number of vehicles should be kept to a minimum. The combat support elements should be dispersed around the CP, about 500 to 1,000 meters from it, to provide security, or they should be laagered at the combat trains. Exceptions to this rule are the Stinger section NCO's vehicle and one or two others whose radios are used to eavesdrop on external communication nets.

The main CP's leadership chain should be clearly identified. While the senior leaders of the TF spend a lot of time at the main CP, they are normally

not responsible for its day to day operation. That job falls to the S-3 Air and the operations NCO. Some task forces also place the headquarters and headquarters company (HHC) executive officer (XO) at the main CP. His function is to run the outside operation — security, logistics, maintenance, and the physical movement of the CP.

There are many ways to configure a main CP. Generally there are three levels of set-up — green, amber, and red.

The green (planning) configuration is the full set-up with all extensions erected, along with any peripheral tentage (Figure 1) and with camouflage nets raised for concealment. This configuration provides a large work space and promotes staff planning and integration for the development of plans and orders. When orders briefings are conducted at the main CP, this configuration facilitates them, and it also promotes light discipline.

The disadvantages are that it presents a large signature and cannot displace quickly. For this reason, the main CP should not remain in the green configuration any longer than necessary to prepare, publish, and issue a plan or order.

The amber (preparation phase)

configuration uses only one track extension. Usually the S-3's M577 extension is erected, and all the other M577s are backed into it (Figure 2). Using only one extension still provides a common work area but creates a smaller signature. (Without such an area, the separate staff sections tend to operate solely in their own vehicles, and there is little staff interaction.) This configuration provides for a more mobile CP while also promoting light discipline during night operations, but it is not suitable for issuing orders.

The red (battle TOC) configuration, which a TF CP assumes before executing a mission, has all extensions stored and the M577s parked in a Y or an X formation (Figure 3). The ramps are down, and a common situation map is positioned outside where it is accessible to all staff members. All nonessential vehicles are positioned away from the CP in a laager at least one terrain feature away or at the combat trains. This configuration greatly reduces the CP's signature and allows increased mobility. Its disadvantages are that it provides little working area, is difficult to use during inclement weather or at night, and does not promote light discipline. A well-trained CP crew can get the ramps up and have the vehicles moving within one minute, if necessary.

A site for a main CP should be selected on the basis of the type of mission, the friendly and enemy situations, communications requirements, adjacent or lateral unit coordination, and the terrain and weather. The site must promote reliable FM communications with the TF's main body and the higher headquarters CP. Since the scouts and the security/counter-reconnaissance force normally operate outside the main CP's FM radio range, retransmission is usually necessary to establish communication with the scouts and the forward OPs.

The chosen site must be accessible to both wheeled and tracked vehicles and must provide enough parking space for the vehicles. Although there should be more than one route into and out of the site, too many such routes increase security requirements. The site must

also provide enough cover and concealment without being too difficult to locate; orders are often delayed at the NTC because commanders cannot find a CP that is too well hidden.

During offensive operations, the main CP should be situated well forward, no more than two terrain

cated with the stationary unit's CP to reduce confusion and misunderstanding. Many units tend to use a liaison officer, the S-3, or half of the main CP instead of collocating CPs. Experience indicates, though, that if main CPs are not colocated during passage of lines operations, the passage of lines is poorly coordinated and not well executed.

During defensive operations, the main CP should be farther to the rear where it will be less vulnerable. During planning, when the CP is in the green configuration, it should be near the TF's rear boundary but not in a position where it will burden the subordinate commanders. To reduce the possibility of detection, the CP should not move into its battle TOC position until the very last moment.

The CP should not be positioned astride a major enemy avenue of approach. During operations at the NTC, the opposing force (OPFOR) often detects the main CP by radio-electronic means or through its reconnaissance elements' visual sightings. The OPFOR does not normally attack that CP, though, until the TF crosses the LD. Then it attacks the CP with artillery or with ambushes by its reconnaissance elements. The OPFOR's sole purpose in waiting is to disrupt the TF's command and control facilities when initial direct fire contact is made, which is one of the most critical points in the battle.

The actual movement of a TF's command and control facilities requires detailed planning and coordination. In many cases at the NTC, though, a unit has no plans for moving its main CP during the battle other than adding a few proposed CP locations to its maneuver graphics.

To help a commander maintain command and control, the CP should remain stationary during the critical phases of an operation — moving from assembly areas and attack positions, crossing the line of departure, passage of lines, initial direct fire contact, breaching obstacles, assault on the objective, repositioning of reserve forces, and commitment of the trailing unit.

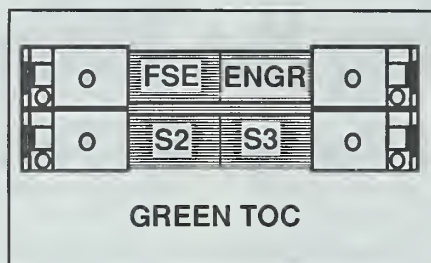


Figure 1

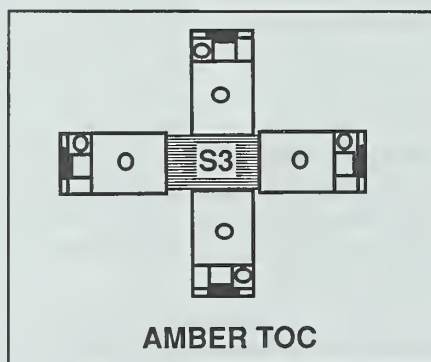


Figure 2

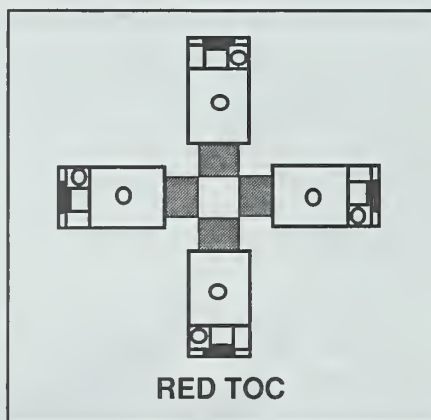


Figure 3

features behind the forward edge of the battle area or the line of departure (LD). CP sites should be planned along the TF axis or route. They should be planned through the depth of the zone of action from the LD to the final objective.

During passage of lines operations, the main CP must be physically collo-

Once the critical phases of the operation have been identified, possible CP sites are selected by map reconnaissance — a joint effort by the S-3 Air, the signal officer, and the HHC XO. If possible, a physical reconnaissance of the proposed sites should also be conducted. The movement time between sites needs to be calculated both for best cases (during the day with clear visibility) and for worst cases (at night in MOPP-4).

The S-3 Air, the CP officer in charge, must have a thorough understanding of the scheme of maneuver and the commander's intent before developing the CP's displacement plan. After determining the critical phases of an operation (the times he does *not* want the CP moving) and estimating the movement time between the proposed sites, he determines the trigger or decision points when the CP must move to support the next critical phase of the battle. A lack of communication or the whim of the second in command (2IC) cannot be allowed to trigger a CP move. The positioning of the main CP should be included in the TF's execution matrix in the operations order, in the decision support template or matrix, or in a separately published execution matrix.

While Field Manual 71-2 and ARTEP 71-2-MTP indicate that the main CP should move by echelons, there are several other movement techniques that include moving by short bounds and by long bounds.

In the move by echelon technique, the main CP is organized into forward and rear sections. The battle staff members are split equally between the two sections. The rear section remains in place and continues to perform the main CP duties while the forward section moves to the next site and sets up. As soon as the forward section is ready, the main CP duties are transferred to it. The rear section then breaks down and moves to link up with the forward section.

In a fluid situation, the two sections may by-pass each other, continually leap-frogging to the next CP site. The 2IC remains with the rear section until the forward section is ready to accept

control of the battle and then moves to the forward section.

In the technique of moving by short bounds, the entire CP moves as one unit to the next site, while the battle staff continues to monitor the battle. While main CP duties cannot be performed as well during the move, the actual distances are short — three or four kilometers — and the movement time should never exceed 15 minutes.



When moving in long bounds, the main CP transfers its functions to another command and control facility, such as the combat trains CP. Once the trains CP accepts control of the battle, the main CP moves to its next position. The distances between sites when using this technique can be up to eight kilometers. Because the main CP is not actively tracking the battle during the move, though, the time used is not critical.

Each of these three movement techniques has its advantages and disadvan-

tages. Moving by short bounds is the easiest to execute, but it requires more frequent moves. Movement by echelon is the most difficult to execute, and it requires a level of training not normally found in units training at the NTC. The least preferred method is moving by long bounds, because it requires extensive cross training and established SOPs. But it is possible that a main CP may have to use all three of them during combat operations.

Whatever technique is used to move the main CP, a unit must have a system for obtaining the critical information it missed during a move. Standard information displays within all of the CPs and well-kept staff journals make it easier to share such information.

When moving by long bounds, the stationary CP must execute an information dump when it passes control of the battle to the moving CP. One way is to have the OICs of both CPs meet on an unused net to conduct an in-depth situation update. Control should never be passed to the moving CP until its personnel completely understand what has taken place during the move.

Regardless of the movement technique, a move requires organization and coordination. Whenever possible, an advance party — led by the HHC XO or the TF signal officer — should precede the movement of the main CP. The advance party has two main responsibilities — to ensure that the site is suitable and to determine the positioning of the various elements within the site.

The movement convoy should be organized with the armored tracked vehicles leading and the wheeled vehicles trailing, and the track commander of the lead vehicle must be the most experienced navigator. Terrain driving should be used whenever possible. Each vehicle should be assigned a sector to observe and the TCs must scan and pay attention to their assigned areas of responsibility. Countless times at the NTC, main CPs have moved down a road, past fully operational enemy vehicles without ever noticing them and have suffered the consequences.

All the members of a particular staff section should not ride in the same vehicle. They and their plans and graphics should be spread across the entire main CP to prevent the possibility of losing the section if one vehicle is lost or destroyed.

All personnel in the main CP must be briefed in detail on the move. If possible, strip maps should be issued, or at least each vehicle must have a map with the location of the next site marked on it.

The main CP must have standard reaction drills for actions on contact and should practice and refine those drills whenever possible. Such actions should

include enemy air, ground, artillery, and NBC attacks.

Most important, when it is the right time for the main CP to move, it should move. Many units at the NTC don't move their main CPs until their communications have failed or until most of the TF is some 20 kilometers to the front because the leaders in the CP hesitated to move for one reason or another.

Again, the rule for moving CPs at the NTC is that "he who hesitates loses communications, loses track of the battle, and contributes nothing to the outcome."

Moving a command post around a

battlefield requires the same level of planning and coordination as moving a maneuver company. Units must train their battle staffs and CP crews in the daily operations of a main CP and must develop standing operating procedures for moving their main CPs. The objective is to have a well-trained main CP that can move, communicate, and control.

Captain Robert C. Neumann, a Chemical officer, served on the Armor task force training team at the National Training Center and was the brigade chemical trainer in the operations group when he wrote this article. He previously served in the 2d Armored Division and is a 1980 ROTC graduate of Norwich University.

Moving in the Mountains

LIEUTENANT COLONEL WILLIAM M. MENNING

One of the key tasks for combat leaders is timing the movement of their maneuver elements so they will be in the right places at the right times. In normal infantry terrain, calculating approximate movement time is a reasonably straightforward procedure.

Thus, the time estimates required for a cross country movement from an assembly area to an objective rally point, and for the various elements to move from the rally point to their respective positions, do not normally demand an inordinate amount of planning and evaluation. Mountainous terrain, however, imposes its own rules.

One factor that is vital to success in mountain operations is the ability of leaders, from squad through battalion level, to calculate movement time accurately. In the mountains it is not enough to just look at a two-kilometer move and guess at the time needed.

The basics of calculating movement

time in mountainous terrain for an unopposed movement are simple:

- Horizontal movement takes 60 minutes for each four kilometers.
- A gain in altitude takes 60 minutes for each 300 meters.
- A loss of altitude takes 60 minutes for each 500 meters.

From the perspective of a soldier, this is one and one-half minutes per 100 meters in horizontal distance, one minute per five meters of elevation gain, or one minute per eight and one-third meters elevation loss.

A given segment of a route is calculated first for horizontal movement and then for vertical movement. For example, in Figure 1, the 2,000-meter horizontal move (30 minutes) with a 100-meter elevation gain (20 minutes) would require a total of 50 minutes.

Each elevation gain and loss is figured separately as shown in Figure 2:

The horizontal distance of 3,000 meters takes 45 minutes; the vertical distance of 100 meters takes 20 minutes; the vertical loss of 50 meters takes 10 minutes; and the final vertical gain of 75 meters takes 15 minutes. Adding the minutes, the climb would take 90 minutes.

The conditions for this rate of movement include a good trail, a 35-pound load, dry weather and terrain, properly conditioned soldiers, and good visibility. As conditions become more adverse, this calculation becomes less of a science and more of an art that must rely on experience and judgment. At the best, a skilled mountaineer may be able to make an accurate estimate.

In extremely mountainous terrain where a unit is traversing very steep hillsides, it may be necessary to prepare contour profiles to provide more precise ground distance calculations than is possible with simple map distances.

This will permit a small unit to navigate more accurately with a known distance for pace-count purposes, but this is not to be confused with the horizontal component for time planning. The factors for time planning remain the horizontal distance and the vertical distance combined. (It may also be necessary to conduct an advance ground reconnaissance.)

MOST ARDUOUS

The most arduous and time-consuming movement, for example, might be one through mountainous terrain characterized by dense evergreen thickets with deep loose snow in a blizzard at night with a 90-pound load and under threat of enemy observation, and conducted by frightened and unfit troops. Naturally, we all hope to avoid such a situation.

More favorable conditions, of course, permit faster movement. For example, a soldier with a very light load of 12 kilograms may be able to move at six kilometers per hour horizontally and 500 meters per hour in ascent.

This method of calculation cannot be applied to sections of terrain that may require technical climbing. In these circumstances, leaders must either consult a guide book (if the route is an established mountaineering route) or conduct a reconnaissance and prepare the route.

The mountainous terrain for which this sort of movement calculation is useful is certainly not limited to alpine zones, and it becomes more useful as the terrain becomes more three dimensional. A patrol leader can make good use of this in planning a route through terrain of the kind that can be found in the wooded Appalachians, in the hills of the Korean peninsula, or in southern Germany's rolling foothills.

At company or battalion level, this calculation is indispensable in operational and logistical planning where subelements are to be tasked with coordinated and mutually supporting movements of many kilometers. It is simple, and it works.

Company commanders and junior

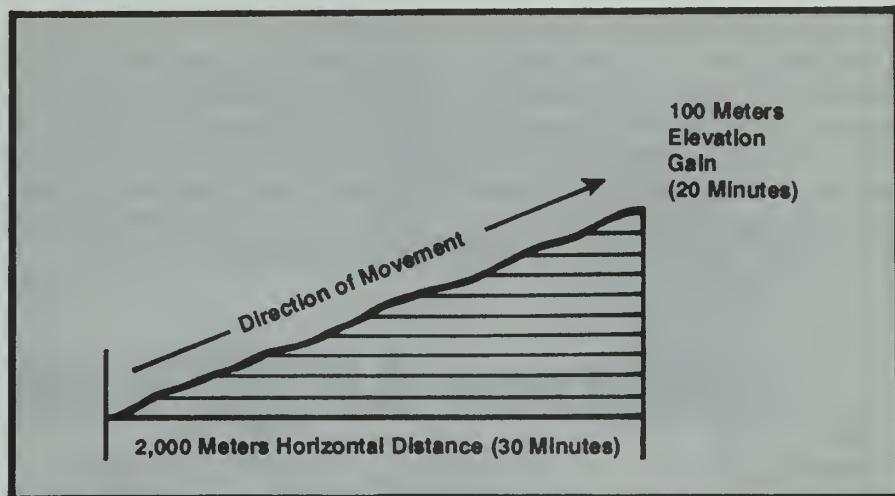


Figure 1

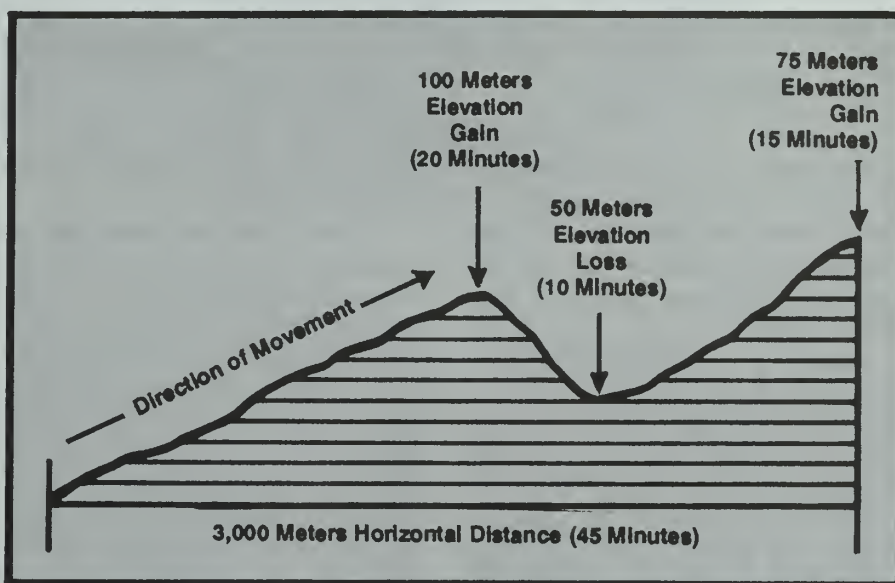


Figure 2

leaders especially must carefully determine the mission essential load for their soldiers. Subjectively, one meter of ascent is as fatiguing as four meters of lateral movement. This means that a soldier will notice any extra weight he may be carrying much sooner if he is conducting a mountain move, as opposed to a road march along a relatively flat route. The criteria for load planning are the same as in any other terrain, but soldiers pay a penalty much sooner for including non-critical weight.

Physical conditioning for soldiers operating in mountainous terrain is critical, and mental conditioning may also become a factor. Heavier soldiers, even if they are physically fit, will pay

the same penalty as if they were assigned heavy combat loads. The proper mental conditioning, especially if the route involves exposure to potentially significant falls around ledges or steep slopes, will do much to improve the individual soldier's ability. Training and experience in conducting mountain moves will help with both mental and physical conditioning.

Small unit leaders must see to it that their soldiers maintain contact with each other at all times. Breaks in contact under any circumstances may jeopardize a mission, but in the mountains, a break in contact may be disastrous, especially in foul weather or limited visibility. Under adverse conditions, the separated

personnel may quickly face life threatening situations. The best way to maintain contact is to conduct an advance reconnaissance and mark the route, follow established paths (if tactically feasible), maintain a steady pace, and take brief periodic rest halts during which leaders can check their

personnel.

Movement in mountainous terrain demands continuous training and proper conditioning, both mental and physical. And because that terrain imposes its own rules, Infantry leaders at all levels must study and understand them, and then must obey them.

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Platoon ARTEPs on the Run

LIEUTENANT COLONEL THOMAS R. ROZMAN

Seldom do actual events allow a unit to carry out its best-laid plans to the letter. Often, the plans that are most significantly affected are the ones that units live with most closely — their training plans.

In keeping with this observation, it is probably a rare battalion operations and training officer (S-3) who has not thought at least once, "Why bother planning? It'll all change tomorrow anyway." But, of course, the answer is always that some plan is better than none. At worst it provides a base point to adjust from. And as training resources to support plans become less and less forgiving, the importance of flexible planning will increase.

Here is an illustration of the way one unit — a mechanized battalion in a heavy brigade based in the continental United States — did plan flexibly, and successfully, for a significant training event. That event was platoon Army Training Evaluation Program (ARTEP) exercises, which are frequently a casualty of schedule changes. The ideas this battalion used may prove useful to other training planners.

The battalion S-3 had prepared a well-thought-out and systematic annual training plan that emphasized the battalion's mission essential task list (METL). The focal point of the

maneuver training program was the battalion's ARTEP.

To make sure the battalion was trained to standard on all individual, crew, and collective tasks, the S-3 had carefully planned to bring all maneuver and support platoons to ARTEP standards. His plan to do this provided each platoon with a scheduled ARTEP and the necessary resources from the battalion, brigade, and support elements. The plan scheduled the support platoons first, then the rifle platoons. Time was also allowed on the training calendar for company commanders to conduct their company level programs.

SCHEDULING PROBLEMS

Then the unforeseen occurred. Adjustments to a joint exercise schedule and subsequent changes in the units identified to participate would place the battalion at an Air Force base some distance away at the time it planned to conduct its rifle platoon ARTEPs. Worse, the planning, preparation, and post-operation time requirements for the exercise consumed more of the training calendar time. This loss of time before and after the exercise eliminated possibilities for rescheduling the rifle platoon ARTEPs to these time frames.

Other firm mission commitments precluded any shifting of the battalion's scheduled ARTEP.

The battalion commander appeared to be faced with deleting the rifle platoon ARTEPs from the battalion's pre-ARTEP training strategy. It seemed that the only possibility remaining was to make the most of the shortened company training periods and to determine what, if anything, could be done during the joint exercise to augment rifle platoon training. He believed it was particularly important to give his platoon leaders and their company commanders some uniform feedback on where they were in terms of training the platoons to standard (a proficiency to standard that was to be determined by observers from outside the company).

The battalion commander instructed the S-3 to examine all possible ways to salvage the platoon ARTEP program. The battalion S-3, in turn, gave the mission of analyzing the possibilities to his primary assistant, the operations and training officer for air operations (S-3 Air). Time being short, the battalion determined that it had three weeks to rework its plan; the S-3 Air made his report the next day.

Fortunately, he had been in his current position for more than eight



months and was soon to take command of one of the battalion's rifle companies. Over this time, he had planned and conducted all of the battalion's support platoon ARTEPs and had already completed the planning and coordination for the rifle platoon ARTEPs.

As the S-3 Air considered the problem, he realized that the vital element would be finding enough time to conduct the ARTEPs. He also concluded that the next most critical factor would be resources, most specifically supporting personnel and their abilities.

A few quick pencil and paper studies of adapting the original plan to a compressed schedule showed that the only solution might be to put more than three platoons at a time through a given cycle. One problem in doing this was that in anything less than multiples of three — say four or five platoons per cycle — some platoons would be under a company headquarters other than their own. The battalion wanted to keep the organic company headquarters involved with its platoons, if possible, to benefit platoon and company command and control relationships. This objective was considered key to the pre-

battalion ARTEP training strategy.

It quickly became apparent that any compression of the schedule that exercised more platoons at the same time would probably stretch one resource to the breaking point — the available OC and OPFOR personnel. Most other resources, including the desired readiness mind-set throughout the battalion, would not be a problem if the ARTEPs could be conducted near the joint exercise site.

But the critical factor was time. Too little time would produce poor quality no matter what the plan might be, and this was an important point. If the limited time available meant negative training, the ARTEPs would be counterproductive. The original plan had called for 48 hours with five OCs per platoon and a platoon size OPFOR of three vehicles and 20 soldiers. If 48 hours could be made available during the joint exercise, there might be a way to save the platoon ARTEPs. It would mean deploying all nine rifle platoons at the same time across an extended front, however, giving each platoon enough space in which to operate. The tough part would be finding enough

OCs and OPFOR to sustain the quality of the original plan.

With these thoughts in mind, the S-3 Air reviewed all deployment and movement data available for the unit displacement from its home base to the site of the joint exercise. Contracted flat-bed tractor trailer trucks would move the battalion's vehicles over a week-long period. The trucks would be dispatched to the battalion area, picking up the battalion's armored vehicles in small numbers around the clock. The first vehicles would arrive and be turned over to the battalion's advanced detachment six days before the exercise. The battalion's main body was scheduled to reach the Air Force base two days before the exercise was to kick off. The last vehicles were scheduled to be unloaded at the air base about 50 hours before the battalion's scheduled start point (SP) crossing for the exercise.

In effect, the companies, with varying numbers of vehicles, could be involved in pre-operations preparation for two full days, to include the platoon ARTEPs. In fact, the ARTEPs would be a good "pre-exercise shakedown" for the battalion.

As the S-3 Air completed a more detailed analysis and coordination effort, the original plan — now expanded to exercise all nine platoons simultaneously — appeared increasingly feasible. A maneuver “box” (a designated area of terrain) 5 kilometers wide and 20 kilometers deep was available outside the joint exercise box. (There were some Air Force restrictions on terrain that were intended to minimize maneuver damage to trees, but these were considered manageable.)

The challenges of having additional OC staff and OPFOR were tougher to solve, but even this hurdle proved manageable. Within 24 hours of being tasked, the S-3 Air was able to report to the S-3 that the battalion could do the platoon ARTEPs at the Air Force base.

The S-3 reviewed the S-3 Air’s analysis and findings and concurred. When the battalion commander was briefed, he made several adjustments to the proposed outline plan and approved it.

The approved plan had actually simplified a lot of the logistics for the exercise. All of the platoons would be deployed and in a more ideal readiness and operational posture than could have been achieved at home base. But the reconnaissance of the maneuver box and all the details associated with expanding, instructing, and rehearsing the OC staff had become much more complex.

Providing at least a platoon (minus) of OPFOR in front of each platoon was also a challenge. The battalion wanted to ensure that the OPFOR also obtained useful mission training while deployed. In the original plan, OPFOR operations had been designed to mirror or complement an evaluated platoon’s operations in such a way that the OPFOR unit performed tasks consistent with its normally assigned missions and that would permit it to achieve training objectives that would benefit its own training.

Now, though, the requirement for nine OPFOR elements greatly complicated the process of achieving these objectives. A scenario that would support the

platoons taking the ARTEP and also provide realistic training opportunities for the OPFOR element consistent with its missions required a careful, detailed design. It was no small task to ensure that the mission statements in the OPFOR orders set the proper stage for these units to achieve the stated training objectives.

The necessary attachments and direct support personnel were also an unknown and worrisome quantity. Most of the soldiers in this category would be from the direct support artillery battalion. But with the need to exercise nine platoons simultaneously, additional outside support would be needed to provide enough OPFOR.

Added to these preparation requirements were all the necessary movement, scheduling, and planning issues that had to be considered and resolved. To simplify the operation, it was decided that the battalion would operate as a deployed organization during the ARTEPs as part of the overall exercises; the deployed battalion TOC would control the ARTEPs, and the trains would support it. Thus, normal battalion operational chain of command and support arrangements would control and support the ARTEPs. A major challenge to achieving this objective would be the number of personnel withdrawn from the control and support elements to serve as OCs and OPFOR.

PLANNING

The S-3 Air began an intense period of backward planning and coordination for the necessary additional resources and OC and OPFOR training. All of this had to be accomplished on top of the battalion’s preparations for the joint exercise.

There was no question that the battalion may have stretched itself, but as the first week and then the second wound down, the project took on the air of a typical battalion operation. OCs and OPFOR were identified and the necessary instruction, rehearsal, and certification were conducted.

When the last tractor trailers had

departed from the home station, the battalion personnel were readying the vehicles for operation. The OCs were with their assigned units, the OPFOR had already deployed, and the TOC was in control on the battalion’s command and control net. Up to this point, the operation had gone according to plan. Soon, all nine platoons would be deployed against an OPFOR on a 48-hour exercise. The last two hours would be used for a feedback session.

Fortunately, the initial joint exercise mission placed the battalion in an assembly area, which eased the transition by allowing time for rest and refitting after the ARTEPs. It also gave the battalion and company commanders time to consider the ARTEP results and correct any shortcomings during the joint exercise.

By the time the battalion occupied its initial assembly area to take part in the joint exercise, it was primed for the fray. Overall, the ARTEP operation went well. The feedback sessions proved particularly effective, though the full benefit was not realized until after the joint exercise. The platoons and platoon leaders had learned much about each other’s strengths and weaknesses. Because the entire battalion command and control apparatus had participated in the ARTEPs, company commanders and the battalion command and control structure had a solid and sure sense of their operational strengths. Weaknesses were identified and were already being corrected. The most impressive bonus was that the battalion was now poised to capitalize on the joint exercise as a full dress rehearsal for its own ARTEP, getting every drop of training benefit from the expensive fuel, lubricants, and spare parts that would be consumed.

Three weeks later, as the battalion completed its after operations checks at its home base, the battalion commander could feel vindicated in his decision. Although barely a week remained before the battalion ARTEP, the soldiers were confident and knew their measure. It was a tight schedule, but worth the risk and the effort.

The battalion took its ARTEP as scheduled, and one senior evaluator

pronounced it highly proficient in mounted operations.

Many battalions are unwilling or unable to rise above unforeseen schedule changes to the extent this battalion did. It saw opportunities where others may not have seen them and reaped big dividends.

But I think there is a larger lesson to be drawn from this story. We all know that despite our efforts we will have to deal with the dynamics of schedules and personnel. We also know that there are excellent guides — such as Field Manual 25-100 and Field Manual 25-101 — that tell how to be smarter in planning

training. Certainly, today we have the objective of our training effort down to a superb orientation on the unit METL. The advent of such training resources as the National Training Center have almost institutionalized the kind of positive professional opportunism this battalion demonstrated in conducting its platoon ARTEPs.

The larger lesson is one that all trainers of mounted units must grasp early, especially as maneuver areas, fuel, lubricants, and spare parts become less and less available. The lesson is that, even in the bleakest situations, there are always training opportunities. When

flexible thinking and planning are applied, a training event that has become a schedule change casualty may find in the change a powerful training opportunity.

Although this may sound obvious, such examples are always worth a little reflection, because too often the results are not nearly so favorable.

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Employing Machineguns

LIEUTENANT COLONEL WILLIAM J. MARTINEZ

Technological advances in recent years have produced lethal and devastating weapons that range from the M1 tank to the latest attack helicopter. Although these sophisticated weapons enable us to focus on the AirLand Battle, they alone cannot hold ground or destroy an enemy fighting force in enough detail to prevent cohesive unit action. That task requires infantrymen, and at battalion, company, or platoon level, effective machinegun fire is still our greatest combat multiplier.

If this is true, why haven't we paid more attention to the effective employment of machinegun fire? Why isn't every leader, from squad leader to battalion commander, proficient in employing and controlling machineguns in both the offense and the defense?

Other armies have had to do similar tasks with less. The Australian Army, for example, places great emphasis on the employment and control of its machineguns. In its infantry basic and advanced courses, as well as in each

infantry battalion, the leaders are constantly drilled on machinegun positions and control measures as well as engagement techniques. We in the U.S. Army might consider using these same techniques to use machinegun fire more effectively.

The basics of machinegun employment include the siting of the machinegun, the trajectory of the rounds, target control, and target identification.

Several factors must be considered when siting a machinegun. The most important are the ground and the characteristics of the beaten zone, the area in which the rounds land. These are intimately related and cannot be viewed separately.

The positioning of a gun to ground (forward or reverse slope) affects the killing ground as well as the protection for the gunner both from observation and from enemy fire. The ideal machinegun position is in a defilade or partial defilade that gives the gunner some cover from direct fire to his front, but

the ground from the machinegun to the killing ground or target area is just as critical. An infantryman also needs to be able to find ground that affords good grazing fire (6 to 18 inches above the ground). Otherwise, his rounds will go over the head of an enemy soldier who is in a prone position. Sometimes, however, the position of the gun does not lend itself to good grazing fire, and a series of compromises and trade-offs must then take place.

The beaten zone is also affected by the ground. On steep uphill terrain, for example, the beaten zone is reduced; on downhill terrain, the ground conforms to the trajectory of the round and the beaten zone is extended. The characteristics of beaten zones vary greatly and are directly influenced by the direction in which the guns are sited.

To get the most from a beaten zone, enfilade fire is best, because it facilitates mutual support and helps conceal the location of a machinegun position. Frontal fire is the least preferred, but



there are situations in which it may be necessary. Quite often, oblique fire can be a compromise between the two.

The trajectory of a round is the key to proper machinegun siting. If the rounds fired from a site do not effectively kill the enemy at the appropriate place, they are useless. In siting machineguns, therefore, the main killing ground should be selected first and the machineguns sited in relation to it.

To cover a target adequately, machineguns are sited in pairs, and natural and manmade obstacles are used to channel the enemy into the killing ground. The enemy's armor can then be separated from his infantry and destroyed by antiarmor weapons, while the infantry is channeled into a killing ground that is dominated by the machineguns. In addition to dominating the killing ground, the machineguns might also be able to support an adjacent flanking unit or sub-unit.

The way the machineguns are controlled is just as important as their siting. In the defense, once the killing ground has been identified and the machineguns have been sited, control and engagement become important. Each gun must cover primary and secondary targets within an arc. Because the machineguns may be positioned in depth, engagement lines need to be identified. The battalion commander may control machinegun fire into a battalion killing ground by using an engagement line (a piece of terrain or a natural or artificial line that signals the guns to fire). As the enemy closes on the position, control is transferred to sub-units and the company commanders direct machinegun fire into the company killing grounds.

Within infantry units, the Australians

have a system of identifying targets in the defense. In the offense, soldiers and leaders at all levels are responsible for identifying targets. In the system they use in the defense, a range card, marked with the prominent landmarks to the front of the position, is allocated to each machinegun team. These landmarks are issued common names, and the distances to them are accurately calibrated. A system of target indication is taught to all soldiers, and the targets are engaged on order.

In the offense, machinegun fire is best used in a fire support or cut-off role. Establishing a base of fire for maneuver is the primary function. The ideal fire support position is at right angles to the axis of assault. This enables the soldiers in the fire support position to view the assaulting force and lift and shift fires to continue placing effective fire on the objective without killing friendly soldiers.

For example, we rarely attack frontally but prefer to attack from a flank or an area in which the enemy is weak. Covering fire from artillery, mortars, and machineguns is often used. The supporting machinegun fire can continue to provide covering fire support when the artillery and mortar fire lifts. This keeps the enemy soldiers in their pits, which reduces friendly casualties and inflicts the greatest damage on the enemy force. Once again, in some situations compromises may have to be made.

Machinegun training must go beyond gunner proficiency. It must ensure that the entire chain of command is proficient in employing the machinegun.

A tactical exercise without troops (TEWT) is an effective way to train subordinates. For example, a company

commander takes his platoon leaders, platoon sergeants, and squad leaders out to a defensive position; uses stakes to represent the machineguns; gives his subordinates a situation, an operations order, and enough time to conduct a thorough appreciation; and then has them site their machineguns and brief him on their concept of employment and control. The commander then critiques their plan and walks the machinegun stakes, talking about each position and seeing whether there may be better ones. He can go one step farther and site the machinegun where it fires down range. When his subordinates brief him on their killing grounds and concept of employment, he might get behind their guns and fire some live ammunition, using tracer ammunition to drive home his points. Nothing is more effective than live fire that lets the subordinate leaders see whether the positions they have chosen will be effective.

The Australian Army emphasizes cross-training in crew-served weapons at squad and platoon level. Thus, all soldiers are trained in using the machinegun, and each machinegunner has a "number two" gunner. If a machinegunner becomes a casualty, another soldier (usually the number two) immediately takes over the gun. Weapon handling competitions are held within the squads and between squads or platoons. Marksmanship of the battlefield variety is also encouraged. Squads test their skills against each other by firing in machinegun competitions.

Effective machinegun fire at the small unit level remains our greatest combat multiplier. We owe it to the soldiers we lead to see that they are able to take full advantage of its use in battle. An infantry battalion that trains its subordinate leaders to employ and control machineguns effectively adds greatly to its combat power.

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The Battle Commander's Fire Support Planning

MAJOR JOHN M. MACH

Fire support can provide up to 80 percent of a maneuver commander's firepower during a battle. And anyone who has witnessed an artillery "battalion-3" (24 guns firing three rounds each at a single target) knows how destructive and psychologically intimidating massed field artillery fire can be.

Unfortunately, though, few officers and NCOs in heavy maneuver units are well-versed in the planning and execution of indirect fire support. They do not intentionally discard their field artillery, but they often become so involved in the demanding maneuver end of the battle that they neglect their fire support coordinators (FSCOORDs). Even when they have the best of intentions, they rarely achieve realistic integrated fire support training and feedback.

In addition, fire support is complex. It is in the formidable realm of mathematics, survey, digital communications, radar, and satellite positioning, and it has its own terminology. For this reason, many maneuver commanders, instead of trying to master the knowledge to employ the fire support they need to win in combat, simply assume (or hope) that their FSCOORDs are competent and trust them to provide accurate fires. But fire support is still the maneuver commander's responsibility and master it he must. (See also, "The Language of Fire Support," by LTC Robert D. Sander, *INFANTRY*, March-April 1990, pages 21-24, and "Fire Support: The Written Side," by Major Jeffrey W. Yaeger, *INFANTRY*, March-April 1990, pages 25-27.)

Although maneuver battle com-

manders may never fully understand fire support, there are some tools they can use to make the most of their available fire support and their FSCOORDs.

Training Circular 6-71, *The Fire Support Handbook for the Maneuver Commander*, is a useful guide for understanding the fire support system, but it does not adequately address the commander's intent for fire support. His intent for fire support is more than a priority of fires. He must paint a clear picture for his FSCOORD, one that an artilleryman can understand and one that is specifically directed to a fires plan of action. (Just as the maneuver commander may not understand field artillery, artillerymen may not entirely understand the maneuver unit's functions.)

COMMANDER'S INTENT

The commander must specify what he expects to achieve with the indirect fire support assets allocated to him. A task force commander's intent, which is more specific than a brigade commander's, covers the task force's area of responsibility and identifies specific targets for his fire support weapons, especially his own organic mortars. Although time constraints may limit how well the commander expresses his intent, he must establish what he wants his fire support assets to accomplish in the battle — how he wants fire support to influence the battle and support the scheme of maneuver. Then he must link this support to specific areas or phases of the battle or to key terrain:

- Types of targets to be engaged and the desired effect on each (the target damage assessment desired).

- What he wants the fires to do to the enemy (suppress, neutralize, destroy, disrupt, or delay).

- Places and times in the fight when fire support is critical.

- Force protection priorities and counterfire priorities, if applicable.

- Requirements, restrictions, and priorities for special munitions, such as FASCAM (family of scatterable mines), DPICM (dual-purpose, improved conventional munitions), or smoke.

- Any special concerns he may have.

A clear and specific outline of the commander's intent for fire support enables the FSCOORD to plan the points on the battlefield where he can and cannot expect to mass fires.

Fire support planning is the continuing process of analyzing, allocating, and scheduling fire support. It determines what types of targets will be attacked and how the available fire support will be used. Deliberate fire planning is conducted through a formal process (from the top down), with refinements (from the bottom up) as time permits. The goal is to integrate fire support into the maneuver commander's battle plans to achieve maximum combat power at the right place and the right time.

In developing a good fire support plan, the most important factor is the initial integrated wargaming and planning the commander does with the S-2, the S-3, the fire support officer (FSO), the air liaison officer (ALO), and the engineer. Along with the brigade

operations order, the task force receives the brigade fire support annex, which includes a target list, a target overlay, an execution matrix, target attack criteria, and an allocation of targets for planning. The FSO takes the guidance and resources the brigade has provided and plans fires to support the task force's battle.

Before the FSO can develop the task force fire support plan, he must understand the maneuver commander's assumptions, must know how to integrate fire support into the commander's battle plan, and must understand the level of risk that is acceptable to the commander. The FSO must know the special munitions requirements, if any, and he should be familiar with the positioning or movement requirements of the fire support assets.

As he develops his plan, the FSO must explain field artillery combat power in terms that have meaning to the maneuver commander. He must clearly articulate both the capabilities and the limitations of the fire support system.

The task force FSO must ensure that target lists are concise and that each target has a purpose and is tied to both the commander's intent and the task force scheme of maneuver. He must restrict target allocation to three to five planned (scheduled or on call) targets per company. A few well-placed targets are more effective, and more often exploited, than numerous scattered ones. The FSO should employ massed fires through the use of target series or target groups integrated with the intelligence preparation of the battlefield and the decision support template.

Finally, the FSO must know where the maneuver commander wants him to be during the execution of the battle. Whether at company or task force level, the FSO must be at the right place on the battlefield from which to orchestrate the indirect fire battle. He does not need to be bonded to the unit commander.

Once the FSO has completed the TF fire plan and before it is published, the S-3 must ensure that the plans and graphics for fire support, maneuver, and obstacles and barriers are mutually supporting, and that they all meet the

commander's intent. As more information becomes available and as the tactical situation changes, the fire plan should be updated and refined.

The task force fire support execution matrix, produced by the FSO, shows how the task force will fight the fire support battle (Figure 1). This matrix, together with the task force fire support graphic overlay and target list, shows the critical information that the maneuver commanders and the fire support officers and NCOs will need. Again, the most critical portion of the TF fire support execution matrix is the commander's intent for fire support.

The fire support matrix is tied to the phases of the operation; it assigns target

execution responsibility and allocates fire support resources to the maneuver company teams. It is prepared in an easy to understand format similar to that of the operations order execution matrix in Appendix B of Field Manual 71-2, The Tank and Mechanized Infantry Battalion Task Force.

A maneuver company team FSO takes the guidance and resources the task force has provided and plans his fires to support the team's battle. The team commander's intent for fire support outlines, in explicit detail, his concept for the execution of targets as he maneuvers the team.

Because the team executes the brigade or TF fire support plan, as the company

	PL GOLD	PL BLACK	PL RED	PL BLUE
TM COBRA		BB 0007 BB 3001	BB 0013 BB 0009 BB 3010	BB 0015 FPF THUNDER
SCOUTS	BB 0029 BB 3004	BB 0017		
MORTARS	POS A1,A2	BB 3001 POS B1	BB 0009 POS B2,C1	POS C2
ATK CRITERIA NEUTRALIZE RECON ELEMENTS SUPPRESS ARMOR PLATOONS DESTROY ADA		MORTAR POS A1 QQ123455 A2 QQ124456 B2 QQ127456 C1 QR011456		AMMUNITION AVAIL 12 BN 3 RDS DPICM 20 PLT 6 RDS HE 15 Min ARTY SMK 20 Min MTR SMK 30 Min ARTY ILL 20 Min MTR ILL
CBT ORGANIZATION 2-5 FA (155,SP) DS				

Figure 1

TGT#	GRID	DESC	TRIGGER PT	EXECUTION	
				PRIMARY	BACKUP
BB 1001	QQ123456	Smoke OP	When 1st Plt is ready to cross LD	1st Plt	FIST
BB 1002 (GrpB1B)	QQ123567	Suspected IN Squad	2d and 3d Plts cross PL BLUE	TM CDR	2d Plt
BB 3108 (GrpB1B)	QQ135467	AT Pos	2d and 3d Plts cross PL BLUE	TM CDR	2d Plt
Priority Fires:		Cross LD	PL BLUE		
		FA MTR 1Plt 1Plt	FA MTR 2Plt 2Plt		
Priority Targets: BMP-2, AT-5 Positions, T-80, ZSU 23-5					
Ammo Avail: FA DPICM 10 BN x 3 MTR HE 22 pt 6 MTR SMK 20 min			CEOI: FA 56.15 FA FDC Q7L45 MTR 32.00 MTR FDC D33		
Coord Instr: 1. Shoot MTR SMK on BB 1001. 2. Grp B1B TGTs are FA priority targets.					

Figure 2



M109 155mm self-propelled artillery in battery live fire.

FSO develops the team fire plan he also refines the TF fire plan to meet the team's fire support requirements (refinement from the bottom up). His primary concerns are planning priority targets and final protective fires and physically validating target locations.

The team fire support matrix (Figure 2), similar in organization to the TF matrix, is a maneuver document and is designed so that all key leaders in the team understand and execute the fire support battle. It is developed by the company FSO with his fire support team, and it is detailed enough to enable the team commander, the platoon leaders and sergeants, and the infantry fighting vehicle and tank commanders to execute the fire plan on their own.

The team's fires matrix is locked into the team commander's maneuver plan. It establishes who will be responsible for each target along with when, where, and under what conditions. Copies of the matrix are distributed down to the IFV and tank commanders to give them the critical information they need to fight the battle.

The final critical measure in fire support planning is a combined arms rehearsal. Observations from the combat training centers emphasize the value of

good rehearsals. In addition to reinforcing both the scheme of maneuver and the fire support plan, a strong rehearsal results in more effective and better synchronized fires during the execution phase. The maneuver commanders, support commanders, specialty platoon leaders, key staff members, and FSCoord and FSOs rehearse the fire support plan at the same time they rehearse the maneuver plan.

A rehearsal is not the same as war gaming, because the decisions have already been made and the operations order issued. It is an exercise to ensure that each key member of the task force knows when, where, and how he will execute his part of the operations order. Task force and team commanders talk through each phase of the battle — the timing, position, and movement of their elements on the battlefield. At the same time, their respective FSOs indicate the fires that will be employed as set forth in the fire support execution matrix.

Rehearsals depend primarily upon the time available. They can take the form of battlefield vantage point rehearsals, terrain model rehearsals, map and graphics rehearsals, or secure voice net backbrief rehearsals. Regardless of the form, the effort expended will

reflect directly on the execution of the battle and the synchronization of combat power.

One of the commander's greatest challenges is to synchronize and concentrate all of his combat power at the critical time and place. But the commander alone will not have the time to integrate all the weapons available to him. The FSO helps the commander by developing a fire plan that integrates the firepower of mortars, close air support, and field artillery to support each phase of the maneuver plan. During the battle, the FSO monitors fire support execution to ensure that the support is continuous and that it will accomplish the commander's intent.

Field artillery is the greatest killer on the battlefield. Employed to its fullest, it can provide the maneuver commander with superior combat power to win the battle. If it is neglected, defeat will surely follow.

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ENLISTED CAREER NOTES



GOLDEN KNIGHTS NEEDED

The U.S. Army parachute team, the Golden Knights, is looking for a few good skydivers.

During a six-week tryout, tentatively scheduled for Fall 1992, the best skydivers from throughout the Army will undergo a test of both their parachuting abilities and their personalities. Since the Golden Knights serve as the Army's goodwill ambassadors at both airshow demonstrations and skydiving competitions, a good-natured parachutist has a better chance of being selected than a more highly skilled but less congenial skydiver.

Anyone who is interested in obtaining an application should send a written request to First Sergeant, U.S. Army Parachute Team, P.O. Box 70126, Fort Bragg, NC 28307.

NCOs NEEDED FOR THE OLD GUARD

The 3d U.S. Infantry Regiment, The Old Guard, is currently seeking non-commissioned officers in a variety of military occupational specialties (MOSs).

Stationed at Fort Myer, Virginia, The Old Guard is an elite unit with a proud heritage. Established in 1784, it is the oldest active infantry unit in the Army.

Since 1946 the regiment has served as the Army's official ceremonial unit and escort to the President. It is responsible for conducting military ceremonies in the capital region and for performing at the White House, the Pentagon, and Arlington National Cemetery.

The 3d Infantry provides security for the Nation's capital in times of civil disturbance or national emergency. It conducts light infantry tactical training

and deploys companies to the National Training Center at Fort Irwin, California; the Jungle Operations Training Center in Panama; the U.S. Marine Corps Amphibious Warfare School at Little Creek, Virginia; and Fort A.P. Hill, Virginia.

Volunteers must be at least 70 inches tall and have a GT score of at least 100, a high school diploma or GED equivalent, no physical profiles, and an excellent record of conduct and performance.

Currently, positions are available in MOSs 11B10, 11B20, 11B30, 11C10, 11C20, 31G30, 31K20, 31V20, 46R20, 46Q30, 54B20, 63B20, 71C20, 71L20, 71L30, 76Y10, 76Y20, 76Y30, 88M10, 88M20, and 94B20.

Soldiers who are interested should contact the Old Guard Recruiting Team at DSN 226-3151 or commercial (703) 696-3151.

NORTHERN WARFARE TRAINING CENTER

The Enlisted Branch at PERSCOM (Total Army Personnel Command) is looking for noncommissioned officers in Career Management Field (CMF) 11 who would like to be assigned to the Northern Warfare Training Center (NWTC) at Fort Greely, Alaska.

First priority in obtaining assignments to the NWTC will go to soldiers who have completed either the summer or the winter phase of the Northern Warfare Training Course, or both, and have received the Special Qualification Identifier of Northern Warfare Expert (SQI E). But other soldiers are also encouraged to submit DA Forms 2-1 (Personnel Qualification Record) to PERSCOM through their personnel service centers.

Soldiers who complete both the

summer and winter phases of training will receive SQI E. A soldier must complete at least one phase to become a candidate for an instructor position. Qualified soldiers who are selected as instructors should meet the following prerequisites:

- Be able to endure extreme cold weather.
- Have the ability to instruct.
- Have no limiting profiles.
- Have no fear of heights.
- Have recently completed a successful tour in a leadership (Green Tab) position.

Soldiers now assigned to the 6th Infantry Division at Fort Richardson or Fort Wainwright, Alaska, are encouraged to apply through their personnel service centers for consecutive overseas tours (COTs) with duty at the NWTC.

Assignments to the NWTC can be two-year accompanied tours (which are preferred), or one-year unaccompanied tours.

Noncommissioned officers in CMF 11 should direct their inquiries to SFC Douglas, the Infantry Branch Career Advisor, at DSN 221-9399 or commercial (703) 325-9399.

BATTLE STAFF NCOs IDENTIFIED BY NEW ASI

Additional Skill Identifier (ASI) 2S, battle staff operations, has been established to help identify Army battle staff personnel and positions.

The new ASI is for NCOs in battle group positions in any MOS. It replaces both ASI 1S (personnel and logistics staff NCO), and ASI 3S (senior NCO — operations and intelligence).

ASI S2 will be given to soldiers who complete the battle staff NCO course at the Army Sergeants Major Academy, Fort Bliss, Texas. A short transition

course is available for those who currently occupy staff positions in corps, division, brigade, regiment or group, and battalion or squadron tables of organization and equipment units and Active Army readiness group NCO advisor positions.

personnel service centers.

For more information, anyone who is interested may call PERSCOM, Infantry Branch, at DSN 221-8055, or commercial (703) 325-8055.

account numbers. DA Form 4869 must be forwarded to local directorates of information management.

VOLUNTEERS NEEDED FOR 75th RANGER REGIMENT

The Army wants volunteers for the 75th Ranger Regiment. To be eligible, soldiers must either be airborne qualified or agree to attend airborne training. They will also have to attend either the Ranger indoctrination program or the Ranger orientation program.

Soldiers stationed overseas should submit their applications five to eight months before their projected dates of return from overseas. Applications should be submitted through installation

RESERVISTS CAN ORDER SDT PUBLICATIONS

The Army is now shipping Skill Development Test publications to Reserve Component units that request them. Units that have not previously ordered the publications can do so using DA Form 4869.

The publications include FM 22-100, FM 22-101, FM 22-102, and FM 25-101 for sergeants, staff sergeants, and sergeants first class. Leadership academies will issue FM 25-100 to soldiers upon completion of the Primary Leadership Development Course (PLDC).

Unit publications clerks can provide

ROTC SCHOLARSHIPS

Active duty soldiers may compete for 300 ROTC college scholarships during school year 1992-1993 under the "Green to Gold" program. The program is administered by the Army ROTC Cadet Command at Fort Monroe, Virginia.

Commanding officer recommendations, general technical aptitude area scores, and Army Physical Fitness Test scores are some of the factors used to determine scholarship winners.

Scholarship applications are available from post education centers or from the Green to Gold Hotline, DSN 680-3186, or commercial (804) 727-3186.

SWAP SHOP



NIGHT OBSERVATION DEVICE MATRIX

Currently, there is no single source document in the Army's inventory that shows a weapon's zeroing standards when an AN/PVS-4 night observation device is mounted on it. If you want this information, you have to pull out a technical manual for the device. Another problem is that the manual for the AN/PVS-4 presents the Canadian bull

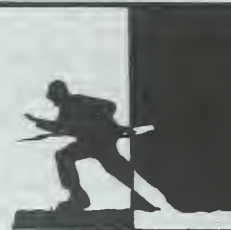
target zero sheet, not the M16A2 sheet.

The NOD matrix shown here was developed during Exercise IRON THUNDER in December 1988 at the Grafenwohr Training Area in Germany. If infantry leaders use this matrix in the field, they will no longer have to flip through the technical manual to find the information.

WEAPON CLICK	TARGET TYPE	POINT OF AIM	IMPACT (in centimeters; will not change)	IMPACT SQ (based on target)	CLICK TO SQ
M16A2 25m	M16A2 M16A1 Canadian Bull	TGT CNT Open Space of Target	7.0	7.7D 10.5D 5D	1.5:1 1:1 2:1
M203	M16A2 M16A1 Canadian Bull	TGT CNT Open Space of Target	9.8D, 4.2R	OFF TGT 7D, 3R	1.5:1 1:1 2:1
M249 25m	M16A2 M16A1 Canadian Bull	TGT CNT Open Space	9D, 2L	10D, 2L 8D, 1.3L 6.5D, 1.5L	1:5:1 1:1 2:1
M60	M16A2 M16A1 Canadian Bull	TGT CNT	11.9	OFF TGT 8.5D	 2:1
M2	Canadian Bull	Open Space of Target Per TM	9.8	7D	1:1

(Submitted by Captain Jorge A. Swank, 25th Infantry Division, Hawaii.)

OFFICERS CAREER NOTES



BATTALION MOTOR OFFICER COURSE

The Battalion Motor Officer Course is designed to prepare officers for assignment to positions that have directly related maintenance responsibilities at battalion level and below with emphasis on management and supervisory operations. It encompasses maintenance management, repair parts supply, troubleshooting, recovery operations, and scheduled maintenance services.

The course is open to Active Army and Reserve Component captains, first

The point of contact at Fort Knox is CW3 Delaquis, DSN 464-8119/8510 or commercial (502) 624-8119/8510.

RC OFFICER EDUCATION SYSTEM CHANGES

The new Reserve Component Officer Education System will have a major effect on officer training. It will encompass education from pre-commissioning through the Army War College; it will be progressive, sequential, and battle focused; and it will incorporate the Reserve Component environment.

Although the new system will add the Combined Arms and Services Staff School (CAS3), it will be shorter overall and more focused than the current system.

Under the new system, pre-commissioning requirements for successful completion of the Officer Basic Course and those for the Army War College will remain the same. Officer Advanced Courses, however, will be offered in two branch-specific phases, one by correspondence and the other through two weeks in residence. Graduation from an advanced course will be a prerequisite for selection to attend CAS3. The CAS3 course will consist of a correspondence phase followed by eight weekend sessions and one two-week session.

The non-resident Command and General Staff Officer College course will be restructured and shortened to two phases, each having two parts. Phase I, which will focus on the tactical level of warfare, will be required for promotion to lieutenant colonel. Phase II, which will focus on the operational level, will be required for promotion to colonel. This course remains available

either through a U.S. Army Reserve Forces School or by correspondence.

MANEUVER CONTROL SYSTEM COURSE

The automated maneuver control system (MCS) is designed to help corps commanders and their staffs manage information and execute the commander's concept of the operation. Training with the MCS helps the force function more effectively and more quickly than the enemy can.

For the system to be effective, an MCS manager must be appointed at each echelon from brigade to corps. To this end, a new functional course is being added to the Army's education system. The Maneuver Control System Managers Course will train personnel to use the capabilities of the MCS and manage critical command and control information.

The course is open to all Active Army, Army National Guard, and Army Reserve officers in the ranks of first lieutenant through lieutenant colonel, who are assigned to corps, division, or brigade staffs and who have been appointed as the unit's MCS manager or assistant manager. The two-week course will be offered monthly at Fort Leavenworth, Kansas, between June and December of each year. Course dates will be announced through the Army Training Requirements and Resources System.

Officers who want to attend the course should apply through normal training channels. For more information, anyone who is interested may call DSN 552-3137 or commercial (913) 684-3137, or write to Commander, USACAC, ATTN: ATZL-CDC-D (MAJ Sellars), Fort Leavenworth, KS 66027-5300.

CLASS NUMBER	REPORT DATE	END DATE
003	08 Jan 92	07 Feb 92
004	30 Jan 92	03 Mar 92
005	13 Feb 92	17 Mar 92
006	28 Feb 92	31 Mar 92
007	13 Mar 92	14 Apr 92
008	27 Mar 92	28 Apr 92
009	10 Apr 92	12 May 92
010	23 Apr 92	22 May 92
011	07 May 92	09 Jun 92
012	20 May 92	19 Jun 92
013	04 Jun 92	07 Jul 92
014	18 Jun 92	21 Jul 92
015	17 Jul 92	18 Aug 92
016	06 Aug 92	04 Sep 92
502	20 Aug 92	22 Sep 92
503	10 Sep 92	09 Oct 92

lieutenants, second lieutenants who have completed the basic officer course and have been in the field for more than six months, warrant officers, and officers of allied nations.

The four-week course is conducted 19 times each fiscal year at Fort Knox, Kentucky. Class quotas may be obtained through normal Army Training and Doctrine Command channels. The accompanying table shows a schedule of classes for the remainder of Fiscal Year 1992.

BOOK REVIEWS



We have several more DESERT SHIELD/DESERT STORM publications we want to call to your attention:

- **DESERT VICTORY: THE WAR FOR KUWAIT.** By Norman Friedman (Naval Institute Press, 1991. 440 Pages. \$24.95). The author is a defense analyst with considerable knowledge of the weapons of war. It is hard to describe his book — it has 250 pages of narrative, 105 pages of technical information grouped into eight appendixes, and 58 pages of discursive notes, but does not have any documentation or an index. The discursive notes, in fact, contain almost as much useful information about the course of events as does the narrative.

The book is not strictly a history of the campaign. The author seems to have four missions in mind — stressing the important role played by the U.S. Navy; attacking the U.S. Air Force's overall concept of air operations; taking issue with the present U.S. Joint Chiefs of Staff organization; and arguing that the United States should adopt a strong maritime strategy.

Friedman is far more at home with the Navy's organization and operational employment than with the Army's — for example, the 1st Cavalry Division is an armor, not an armored cavalry, division, and the 101st Airborne Division is not an airborne division but an air assault division.

Still, the Infantryman will find the book worth reading, particularly the notes, but he must keep in mind that it was prepared just as the fighting ended. Events since then call for some modification of the author's overall presentation.

- **DESERT STORM.** From the Editors of *Military History* magazine (Empire Press, 602 S. King Street, Suite 300, Leesburg, VA 22075, 1991. 176 Pages. \$34.95). Thirteen authors and

essayists join the editor of *Military History* magazine to give us their views of the campaign and the major events surrounding it. The editor, working with his production people, has then added a number of striking photographs and other graphics. The overall impression is good.

But the various narratives read more like extended magazine articles, with numerous quotations from actual participants. In general, they are easy to read, but a reader may occasionally want to know more about a particular event.

The book contains several irritating errors: The entire 2d Armored Division did not serve in DESERT STORM; there was no U.S. VI Corps; the 101st Airborne Division did not use 300 helicopters in mid-January 1991 to insert Special Forces units into Iraq; there is no such unit as the 2d Battalion, 82d Airborne Division; and it was the 24th Infantry Division that took part, not the 24th Mechanized Infantry Brigade.

Since this book contains no documentation, it is difficult to call it a history of the war. It is a generally pleasing book to have around, but no more.

- **THE GULF WAR READER: HISTORY, DOCUMENTS, OPINIONS.** Edited by Micah L. Sifry and Christopher Cerf (A *Times* Book. Random House, 1991. 526 Pages. \$15.00, Softbound). This is indeed a collection of documents (only a few), official statements (not many), and extracts from magazine and newspaper articles (many, many). Interestingly enough, none of the latter were taken from military journals or newspapers.

There is little real history here, but there are a lot of opinions, most of them unfavorable toward the war, the president, and our Middle East policies over

the years. There is also a short piece, taken from *The Village Voice*, on the AIDS crisis. It almost seems the editors are daring us to find it (the piece is just past the center of the book) as a way of determining whether we have actually gone through the entire book. It serves no other purpose.

- **THE DESERT JAYHAWK: OPERATION DESERT SHIELD/STORM** (Produced by the U.S. VII Corps Public Affairs Office, 1991. 48 Pages, Softbound). This is a special edition of the corps' usual JAYHAWK publication. In words, pictures (many in full color), and maps, it offers a brief overview of the corps' activities from its deployment from Germany to the end of the fighting and then gives a short description of the roles each of the corps' major elements played, plus a list of the Army National Guard and Army Reserve units that served with the corps during Operation DESERT SHIELD/DESERT STORM. The corps PAO is to be congratulated on a job well done.

In the same vein, we have received several audio cassettes you should find to be of considerable interest:

- **DESERT WARRIORS: THE MEN AND WOMEN WHO WON THE GULF WAR.** By the Staff of *USA Today*, and read by Laurence Jolidon, *et.al.* (Simon and Schuster, 1991. 60 minutes. \$9.95). This is an audio version of the paperback recently published by Pocket Books.

- **SCHWARZKOPF: HOW WE WON THE WAR.** Narrated by Bob Cain (Simon and Schuster, 1991. 50 minutes. \$9.95). This one features substantial excerpts from the general's speeches, press conferences, and comments after he returned home.

- **WINNING THE WAR, STRIVING FOR PEACE** (Produced by the Hughes Corporate Communications office, 1991). This well-done cassette

concentrates on the 55 corporate systems used by the armed forces during the war for Kuwait.

• **EAGLES OVER THE GULF, DESERT STORM: THE PILOTS' STORIES** (Produced by Cassette Productions Unlimited, 1991. 130 minutes. \$11.95). This cassette is a compilation of 50 interviews with Air Force, Marine Corps, and Navy aircrews, coupled with combat cockpit recordings. It also contains excerpts from President Bush's speeches during the war.

Finally, we would call your attention to a most valuable publication we have just received:

• **JANE'S MILITARY TRAINING SYSTEMS**, 1991-92. Fourth Edition. Edited by Terry J. Gander (Jane's, 1991. 389 Pages. \$210.00, Softbound). Although the editor believes "the military training and simulation industry is in for a hard time over the next few years," he also believes "all is not doom and gloom." He feels that Japan is now prepared to enter the market, something that "may turn out to be a very significant event" in this particular market place.

He divides his publication into five major parts — land based systems, naval systems, aviation/avionics systems, computer-generated image and visual display systems, and aerial target drones and aerial targets. To this he adds his foreword, a list of abbreviations, and an addendum and an index. All infantry trainers will find this book of great value.

Now here are a number of our longer reviews:

HAZARDOUS DUTY: AN AMERICAN SOLDIER IN THE TWENTIETH CENTURY. By Major General John K. Singlaub with Malcolm McConnell (A Summit Book. Simon and Schuster, 1991. 574 Pages. \$24.95). Reviewed by Major Harold E. Raugh, Jr., United States Army.

The recent Iran-Contra affair, in which he figured prominently and felt that he was grossly slandered by the "consummate liar" Oliver North, apparently prompted General Singlaub to write this autobiography. His is a story that deserved to be told.

Although perhaps better known for his "firing" by President Carter in 1977 when he allegedly opposed the administration's plan to withdraw troops from Korea (shown to have been a flagrant manipulation of the facts), Singlaub was a combat infantryman whose adventure-filled career spanned almost four decades.

Commissioned through the Army ROTC program in 1943, he parachuted behind enemy lines into occupied France in 1944, and jumped into a Japanese-held prisoner-of-war camp the following year. Singlaub was further involved in covert operations and unconventional warfare activities during the Chinese Civil War, the Korean War, and the Vietnam War.

A constant thread woven through the tapestry of his life is Singlaub's staunch resolve to combat fascism and communism wherever it threatens democracy and liberty. Although his book was written before the recent coup attempt in the Soviet Union, Singlaub concludes by admonishing his readers not to be naive and suggests that the Soviet Union's more recent policies are only a subterfuge for the restructuring of its economy, after which the Soviets will continue their inexorable attempt to dominate the world. Even though this theme may prove to be outdated, the book is well worth reading.

INSURGENCY AND TERRORISM: INSIDE MODERN REVOLUTIONARY WARFARE. By Bard E. O'Neill (Brassey's (U.S.), 1990. 170 Pages. \$19.00). Reviewed by Colonel James B. Motley, United States Army Retired.

It is apparent, as the last decade of this century continues to unfold, that insurgency will persist as a type of low intensity conflict in the international system. The author, professor of international affairs at the National War College, underscores this premise by noting "there are no signs that the problems of national cohesion and economic development that give rise to these conflicts will be solved."

This book, set in nine chapters, builds

and improves on a framework of analysis that the author introduced in a previous book. Thus, it can serve as a primer for those individuals who may be given the task of analyzing and comparing insurgencies; at the same time, those who have focused their attention on conventional and strategic warfare will find it a valuable reference. Chapter endnotes serve as an excellent guide for those who seek further reading on the subject.

The book's value lies in the author's ability to identify the complexity of insurgencies and to describe the interplay of many factors, as well as to explain the need for an organized way of dealing with them. A career military man will find it worthwhile to spend some time reading and studying this book.

FIREFIGHT AT YECHON: COURAGE AND RACISM IN THE KOREAN WAR. By Charles M. Bussey (Brassey's (U.S.), 1991. 304 Pages. \$21.95). Reviewed by Lieutenant Colonel Donald C. Snedeker, United States Army.

The author, a retired lieutenant colonel, served in the Army for 24 years, initially as an Army Air Force pilot (and a member of the famous "Tuskegee Airmen") during World War II, and later as a combat engineer company commander during the Korean War.

A reader doesn't have to read many pages of this book to know that the author is a proud but bitter man. By the end of the book, however, the reasons for both his pride and his bitterness are obvious.

Other reviewers have complained that the author "ruined a perfectly good war story" with his bitterness. They seem to feel that his vitriolic attacks on the racism that was rampant in the Army, the news media, and U.S. society during the mid-20th century detract from the events the author describes so graphically.

But for Colonel Bussey, there is no separating the two. He wants the reader to see the events as they happened, one within the context of the other. He is not concerned with telling just another

war story. As it is, his story is real life, life as it was for the black soldier in the Jim Crow army and in the U.S. during World War II and the Korean War. The result is an unvarnished, blatantly opinionated version of the events narrated in this book — without apology from the author. It is also strongly patriotic, for the author's love of his country, despite its obvious faults, shines through.

Unfortunately, his bitterness does cause his narrative to become excessive and even oppressive at times. He sometimes devolves into the same "us-versus-them" attitude that was at the heart of the system he criticizes, and he seems to become consumed with his own hatred, literally ranting and raging. But to his credit — and this is what makes the book worth reading — the author does not try to disguise his story, nor does he claim it to be something it was not. It is his story of a unit action during the Korean War, complete with an emotional cast of characters and events.

In this sense, the story is very personal. But in a broader sense, it represents the untold story of the generation of African-American soldiers who fought and died to defend a system that sought to segregate them. In this context, the valor and dedication of Charles Bussey and the men of the 77th Engineer Combat Company is even more incredible.

TACTICAL RECONNAISSANCE: A SOVIET VIEW. Soviet Military Thought Number 23. By R. G. Simonyan and S. V. Grishin (Moscow, 1980. USGPO S/N 008-070-00643-0. 199 Pages. \$6.00, Softbound). Reviewed by Major M. R. Jacobson, United States Army Reserve.

This is another in the series of Soviet books in translation published under the auspices of the United States Air Force. As such, it is an excellent guide to all aspects of Soviet reconnaissance methods; it contains discussions of the roles, requirements, fundamentals, objectives, and conduct of Soviet reconnaissance. It takes a comprehensive

look at the various types of Soviet reconnaissance, including ground, aerial, electronic, and artillery.

The book has a detailed chapter on patrolling, raids, and the taking of prisoners. (The Soviets place great emphasis on the taking of prisoners, whom they refer to as "tongues.") The book also explains the differences between combat reconnaissance patrols and independent reconnaissance patrols. (In fact, information on the independent reconnaissance patrol has only recently been rediscovered by the threat community.) Finally, it contains information on the Soviet intelligence process, which includes the assembling, processing, and briefing of intelligence information.

Although the Soviet threat has declined, this is an excellent book for training personnel and units on how to plan and conduct reconnaissance. It contains good reference material for any unit, U.S. or otherwise. It is particularly recommended to anyone involved in planning or executing reconnaissance, counter-reconnaissance, or threat analysis.

THE DYNAMICS OF DEFEAT: THE VIETNAM WAR IN HAU NGHIA PROVINCE. By Eric M. Bergerud (Westview Press, 1990. 383 Pages. \$29.95). Reviewed by Colonel David R. Kiernan, United States Army.

The more things change, the more they remain the same. And so it was with the U.S. pacification program in Vietnam. Using Hau Nghia province as the paradigm for the ill-fated Civil Operations and Revolutionary (Rural) Development Support (CORDS) program, the author has done a superb job in tracing the roots of communist insurgency in Southeast Asia from 1954 to the last battles of 1973. His analysis is credible as he draws heavily upon the data contained in the U.S. advisors' Hamlet Evaluation System (HES) reports as well as the territorial forces assessment.

The author looks at Hau Nghia province as a microcosm for the other 44 South Vietnamese provinces. He therefore describes the pacification program in the province through certain

personalities that many readers will recognize at once. It seemed that all paths eventually led to this tiny province as General Creighton Abrams, John Paul Vann, and young William Colby each made futile efforts to stabilize the province. Throughout the war, Hau Nghia was consistently rated at the bottom of the provincial list in the effectiveness of its local security measures against the menacing Viet Cong.

The author's vivid description of life in Hau Nghia province is taken from the after action reports submitted by the U.S. military advisors and from his interviews with numerous individuals who served with other government agencies during these two decades.

The CORDS web of confusion was woven by Department of Defense, Department of State, Central Intelligence Agency, and host nation government officials. Found here are the petty personality clashes, agency turf battles, and the ultimate but sad end state — defeat.

The lesson for today's reader is that from the labyrinth of the bureaucracy that existed in that war, the United States may find a path that leads to more success in its Third World efforts today. Perhaps one can even find the seeds of a fresh approach to the foreign policy issues for our country in the 21st century.

EMPEROR OF THE CENTURIES, VOLUME IV, NAPOLEON: MAN AND MEANING. By Abbott William Sherower (Napoleonic Heritage Books, 1991. 461 Pages. \$52.50). Reviewed by Colonel John C. Spence III, United States Army Reserve.

This is the fourth volume in an impressive in-depth study of Napoleon. It deals with Napoleon's early career as a second lieutenant of artillery, a period during which he developed his immense intellect.

Napoleon was not only a commander; he was an avid student of the science of war as well as a student of the cultural basis of Western civilization. The author aptly points out that Napoleon had a restless, curious mind. He read voluminously and studied in detail the

thoughts, writings, and works of countless persons. It was his unlimited intellectual curiosity that contributed to his place in history.

What is more impressive about Napoleon during this period was the extent of his self-education and study. Equally impressive is the manner in which he assimilated the vast amount of erudition that formed the intellectual basis of his military career.

The book's style is incisive and analytical. The author often writes in the present tense as if his subject, Napoleon, stood physically before him. The book is certainly a valuable source of information for the professional student of the napoleonic era, because Napoleon demonstrated that an officer's education need not end with formal training.

OFFENSE AND DEFENSE IN ISRAELI MILITARY DOCTRINE. By Ariel Levite (Westview Press, 1990. 194 Pages. \$18.00). Reviewed by Lieutenant Colonel Cole C. Kingseed, United States Army.

In recent years there has been a veritable avalanche of monographs that focus on the dimensions of national security policy. This one is a recent effort by Israel's Jaffee Center for Strategic Studies to explore the subject. It attempts to refine the understanding of military doctrine, which the author defines as the authoritative thinking that guides the design of force structure and the conduct of operations.

An offensive orientation that advocates the earliest possible transfer of war to an enemy's territory has traditionally characterized all Israeli military doctrine. The author, a senior research associate at the Center, believes that this orientation is remarkable for two reasons: Israel is committed strategically to a defensive posture that supports the status quo in the continuing Arab-Israeli conflict, and the doctrine has endured largely intact since the founding of the Israeli state. Over the decades, this "cult of the offensive" has so dominated Israeli military thinking that it has led to a gradual erosion of the

army's defensive skills, as evident in the initial defeat it suffered in the 1973 war with Egypt.

The author concludes that to compensate for this "doctrinal stagnation" Israel must reexamine its security conception, rethink its grand strategy, and revitalize its military doctrine. Specifically, he feels that Israel should adopt a more balanced doctrine that includes the addition of a strong defensive component and a corresponding indoctrination of its military and political leaders.

In summary, this book presents a number of provocative insights into the need for a country's leaders to constantly reassess their military doctrine in light of changing international and domestic conditions. Military theorists and analysts will certainly see similarities with our own country's evolving national military strategy. It is recommended for those who are interested in the development, application, and evolution of military doctrine.

RECENT AND RECOMMENDED

DEVELOPMENT DIPLOMACY: U.S. ECONOMIC ASSISTANCE TO THE WEST BANK AND GAZA. By Joyce R. Starr. Policy Papers Number 12. The Washington Institute for Near East Policy, 1989. 46 Pages, Softbound.

HEARTBREAK RIDGE: KOREA, 1951. By Arned L. Hinshaw. Praeger, 1989. 172 Pages. \$19.95.

THE SIGINT SECRETS: THE SIGNALS INTELLIGENCE WAR, 1900 TO TODAY. By Nigel West. William Morrow, 1988. 347 Pages. \$19.95.

HITLER'S HERALDS: THE STORY OF THE FREIKORPS. By Nigel H. Jones. David and Charles, 1989. 284 Pages. \$29.95.

THE KILLING OF SS OBERGRUPPEN-FUHRER REINHARD HEYDRICH. By Callum MacDonald. The Free Press, 1989. 239 Pages. \$19.95.

AN ILLUSTRATED GUIDE TO MODERN BOMBERS. Edited by Bill Gunston. Prentice Hall Press, 1988. 118 Pages. \$10.95.

COMBAT ARMS: MODERN FIGHTERS. Edited by Ray Bonds. Prentice Hall Press, 1988. 78 Pages. \$14.95.

COMBAT ARMS: MODERN CARRIERS. Edited by Ray Bonds. Prentice Hall Press, 1988. 78 Pages. \$14.95.

RICHARD LIONHEART: THE CRUSADER KING. By John Matthews, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95, Softbound.

WARRIORS OF ARTHUR. By John Matthews and John Stewart, illustrations by Richard Hook. Sterling, 1987. 192 Pages. \$24.95.

CHARLEMAGNE: FOUNDER OF THE

HOLY ROMAN EMPIRE. By Bob Stewart, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95, Softbound.

EL CID: CHAMPION OF SPAIN. By John Matthews, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95, Softbound.

FIONN MAC CUMHAIL: CHAMPION OF IRELAND. By John Matthews, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95, Softbound.

MACBETH: SCOTLAND'S WARRIOR KING. By Bob Stewart, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95.

CUCHULAINN: HOUND OF ULSTER. By Bob Stewart, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95, Softbound.

BOADICEA: WARRIOR QUEEN OF THE CELTS. By John Matthews, illustrations by James Field. Sterling, 1988. 48 Pages. \$7.95.

LESSONS LEARNED: THE IRAN-IRAQ WAR. By Stephen C. Pelletiere and Douglas V. Johnson II. Strategic Studies Institute, U.S. Army War College, 1991. USGPO S/N 008-020-01238-6. 119 Pages. \$4.00, Softbound.

"BLACK '41": THE WEST POINT CLASS OF 1941 AND THE AMERICAN TRIUMPH IN WORLD WAR II. By Bill Yenne. John Wiley, 1991. 388 Pages. \$24.95.

GOING OVER THE TOP WITH MORALE: A STUDY OF MEN AND COURAGE. By John Baynes. Avery Publishing Group. 286 Pages. \$10.95.

OLD BATTLES AND NEW DEFENCES. By Correlli Barnett, et.al. Brassey's (UK), 1986. 143 Pages. \$17.00.

FLYING MACARTHUR TO VICTORY. By Weldon E. Rhoades. Texas A&M University Press, 1987. 563 Pages. \$19.95.

THE MILITARY COMMITTEE OF THE NORTH ATLANTIC ALLIANCE: A STUDY OF STRUCTURE AND STRATEGY. By Douglas L. Bland. Praeger, 1990. 288 Pages. \$47.95.

COMBAT MEDIC-VIETNAM. By Craig Roberts. Pocket Books, 1991. 232 Pages. \$4.95, Softbound.

GREAT DECISIONS, 1991. By Nancy L. Hoepli, Editor-in-Chief. Foreign Policy Association (729 Seventh Avenue, New York, NY 10019), 1991. 96 Pages. \$10.00, Softbound.

THE GREEN BERETS IN VIETNAM, 1961-71. By Colonel Francis J. Kelly. An AUSA Book. Originally published in 1973 as a volume in the U.S. Army's Vietnam Studies Series. Brassey's (U.S.), 1991. 227 Pages. \$12.95, Softbound.

THE RANDLORDS. By Geoffrey Wheatcroft. Atheneum, 1986. 314 Pages. \$17.95.

BARONS OF THE SKY: FROM EARLY FLIGHT TO STRATEGIC WARFARE: THE STORY OF THE AMERICAN AEROSPACE INDUSTRY. By Wayne Biddle. Simon & Schuster, 1991. 366 Pages. \$22.95.

BLANK CHECK: THE PENTAGON'S BLACK BUDGET. By Tim Weiner. Warner Books, 1990. 272 Pages. \$21.95.

INSIDE HITLER'S HEADQUARTERS, 1939-45. By Walter Warlimont. Translated from the German by R.H. Barry. A Reprint. Presidio Press, 1990. 658 Pages. \$35.00.

THE IOWA CLASS BATTLESHIPS: IOWA, NEW JERSEY, MISSOURI, & WISCONSIN. By Malcolm Muir. Sterling, 1991. 160 Pages. \$14.95, Softbound.

LONG TIME EDITOR RETIRES

Albert N. Garland, the Editor of INFANTRY Magazine and a long time mainstay of the staff, retired on 10 January 1992. This issue is the last one to be published under his direction. But it will be a long time before his influence is lost either to the magazine staff or to the Army.

He first served as Editor of INFANTRY from 1966 to 1968, his final assignment before retiring from active duty as a lieutenant colonel. After several years in other pursuits, he returned to the magazine staff as Deputy Editor in 1974. When the Editor's job was converted to a civilian slot in 1983, he again became the Editor.

But editing INFANTRY is certainly not all that he has done in his career.

He graduated from Louisiana State University in 1943 (returning later to earn a master's degree in history and education). He also completed ROTC at LSU but, according to the policy at the time, was then sent to Officer Candidate School at Fort Benning. He was commissioned an Infantry officer upon graduation from OCS Class 244 on 29 May 1943. His first duty assignment was as a platoon leader in Company A, 13th Battalion, 4th Training Regiment, Fort McClellan, Alabama.

He subsequently commanded a rifle company in the 84th Infantry Division during World War II and took part in the Northern France, Ardennes-Alsace, and Central Europe campaigns. He was awarded the Silver Star, the Bronze Star, and the Combat Infantryman's Badge.

Among numerous other assignments, he was Senior Infantry Division Advisor, Military Assistance Advisory Group, China; Historian and Branch Chief, Office of the Chief of Military History; Chief, G-3 Plans and Operations, I Corps (Group), in Korea; and Deputy Editor of *Military Review* at Fort Leavenworth.

During his assignment to the Center of Military History, he co-authored *Sicily and the Surrender of Italy*, a volume in the Army's official World War II series. He has edited several other military books including *Infantry in Vietnam*, two volumes in the paperback series titled *Combat Notes from Vietnam*, and another paperback publication called *Historical Essays*. He has also written numerous articles and book reviews for such professional military magazines as *Army*, *Infantry*, *Armor*, *Military Review*, *Military Affairs*, and *National Defense*.

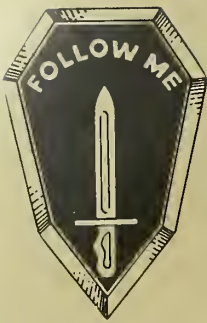
Although these accomplishments are impressive, other contributions he has made in more recent years may well be his most valuable legacy. As a retired officer, a historian, and an educator — as well as an avid reader — he has learned a great deal about the Army over the years. He has also watched numerous innovations come and go — and come again. As a result, he has been able to serve as a sounding board and an advisor to the many would-be authors who have called or dropped by his office — and to the infantry community as a whole.

In addition, he has received countless calls and letters over the years asking for information on bits of history most people have forgotten, or have never known: Why is blue the Infantry color? What is the source of "the Queen of Battle"? Of "Follow Me"? Who commanded such and such division in the such and such campaign? When he has not been able to find the answers in his own phenomenal memory bank, he has willingly and zealously pursued them elsewhere.

In 1989, because of these and other contributions to the infantry community, he was inducted into the Infantry OCS Hall of Fame.

This distinguished Infantryman, editor, and great American will long be remembered at Fort Benning and the Infantry School. As he begins enjoying his second retirement, we all say to him, "Thanks for a job well done."





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